

**National Park Service
U.S. Department of the Interior
Death Valley National Park
California/Nevada**



**Towne Pass Material Site #218
Environmental Assessment /Assessment of Effect**

February 2007

This page intentionally left blank.

Towne Pass Material Site #218

Death Valley National Park • California/Nevada

SUMMARY

The National Park Service (NPS) is considering permitting the reactivation of Towne Pass Materials Site #218 (MS #218) which is located along State Route (SR) 190 adjacent to Towne Pass in Inyo County, California. Prior to the passage of the California Desert Protection Act of 1994 (PL 103-433), the materials site was located immediately west of the boundary of Death Valley National Monument on lands administered by the Bureau of Land Management (BLM). At that time, the California Department of Transportation (Caltrans) operated MS #218 under a permit issued by the BLM. Under this permit, Caltrans extracted sand and gravel from 20 acres of federal lands making this the principal road maintenance site for the Towne Pass section of California State Highway (SR) 190, which traverses Death Valley National Park (DEVA). In 1994, with the passage of the California Desert Protection Act, MS #218 was incorporated within the expanded boundaries of DEVA, and use of the materials site was discontinued.

Currently, Caltrans is primarily responsible for the costly maintenance of SR 190, a situation of clear benefit to the NPS (lead agency). Materials from MS #218 are integral to maintaining this road in a cost-effective manner. No other materials sites are located at a reasonable distance within the Park boundaries, and obtaining materials from outside the park is both cost-prohibitive and runs the risk of introducing non-native plant species to the DEVA environment.

This environmental assessment examines in detail two alternatives: the no-action alternative and the proposed action. The proposed action involves reactivating the materials site exclusively within the area of previous disturbance. The period of use would be determined in a general agreement between Death Valley National Park and Caltrans. Prior to its inclusion into Death Valley National Park, the Towne Pass Materials Site #218 was managed by the Bureau of Land Management who issued use permits of 30 years duration. To suit the present needs of both Death Valley National Park and Caltrans, the NPS will set a 20-year lifetime of the Towne Pass site in the general agreement. At the end of 20 years, Caltrans will reclaim the site for NPS purposes.

The preferred alternative would have no or negligible impacts on floodplains and wetlands; designated critical habitat, ecologically critical areas, wild and scenic rivers, and other natural areas; prime and unique farmland; park operations; socioeconomics and land use; environmental justice; cultural resources (archeological resources, historic structures, ethnographic resources, cultural landscapes); museum objects; Indian trust resources; visual resources; or soundscapes.

The preferred alternative would contribute long-term, moderate, localized adverse impacts to geologic features; long-term, minor, localized adverse impacts to drainage patterns and negligible, short-term, localized adverse impacts to water quality; long-term, moderate, localized adverse impacts to soils; long-term, minor, localized adverse impacts to vegetation; long-term, moderate, adverse impacts to wildlife; and both long-term, localized, and negligible impacts and short-term, minor, localized impacts to visitor experience. Upon completion of the project,

reclamation is planned that will mitigate the final impacts to soils and vegetation to negligible.

PUBLIC COMMENT

If you wish to comment on this environmental assessment, you may mail comments to the name and address below. This environmental assessment will be on public review for 30 days.

Comments will be accepted if they are emailed or postmarked by 30 days after the date this EA is released. Please note that names and addresses of people who comment become part of the public record. If you wish us to withhold your name and/or address, you must state this prominently at the beginning of your comment. We will make all submissions from organizations, businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

Please address comments to: Superintendent; Death Valley National Park; Attn: Caltrans Towne Pass Material Site; PO Box 579; Death Valley, CA 92328.

E-mail: DEVA_superintendent@nps.gov

**United States Department of the Interior • National Park Service •
Death Valley National Park**

TABLE OF CONTENTS

ENVIRONMENTAL ASSESSMENT	I
ASSESSMENT OF EFFECT	I
SUMMARY	i
PUBLIC COMMENT.....	ii
I. PURPOSE AND NEED FOR ACTION	1
A. PURPOSE.....	1
B. NEED.....	1
C. RELATIONSHIP OF THE PROPOSED ACTION TO PREVIOUS PLANNING EFFORTS	1
D. MANAGEMENT AUTHORITIES	5
E. IMPACT TOPICS	6
II. ALTERNATIVES CONSIDERED	14
A. NO-ACTION ALTERNATIVE.....	14
B. PROPOSED ACTION	14
C. SUMMARIES/COSTS	27
III. AFFECTED ENVIRONMENT.....	31
A. LOCATION AND GENERAL DESCRIPTION	28
GEOLOGY	31
HYDROLOGY (WATER QUALITY)	33
SOILS	35
VEGETATION.....	35
WILDLIFE AND WILDLIFE HABITAT.....	37
AIR QUALITY.....	35
CULTURAL RESOURCES	36
LAND USE.....	38

IV. ENVIRONMENTAL CONSEQUENCES	40
A. METHODOLOGY	38
B. IMPACT INTENSITY THRESHOLDS	39
IMPAIRMENT	45
CUMULATIVE IMPACT SCENARIO	45
PAST ACTIONS:	46
CURRENT AND FUTURE ACTIONS:	46
C. ENVIRONMENTAL CONSEQUENCES – ALTERNATIVE 1: NO ACTION	46
GEOLOGY	46
HYDROLOGY (WATER QUALITY).....	47
SOILS	47
VEGETATION.....	47
WILDLIFE AND WILDLIFE HABITAT.....	47
THREATENED AND ENDANGERED SPECIES.....	47
CULTURAL RESOURCES	48
VISITOR EXPERIENCE	ERROR! BOOKMARK NOT DEFINED.
D. ENVIRONMENTAL CONSEQUENCES – ALTERNATIVE 2: PROPOSED ACTION.....	48
GEOLOGY	48
HYDROLOGY (WATER QUALITY).....	48
SOILS	49
VEGETATION.....	49
WILDLIFE AND WILDLIFE HABITAT.....	50
THREATENED AND ENDANGERED SPECIES.....	50
CULTURAL RESOURCES	50
VISITOR EXPERIENCE	ERROR! BOOKMARK NOT DEFINED.
E. ENVIRONMENTALLY PREFERRED ALTERNATIVE.....	51
V. CONSULTATION / COORDINATION.....	55
A. PUBLIC SCOPING PROCESS.....	52
B. AGENCIES/TRIBES/ORGANIZATION/INDIVIDUALS CONTACTED.....	56

C. PREPARERS	526
D. LIST OF RECIPIENTS	536
FEDERAL AGENCIES.....	536
INDIAN TRIBES	557
STATE AND LOCAL AGENCIES	537
VI. REFERENCES.....	58

TABLES

TABLE 1. QUALITATIVE DESCRIPTION OF SOIL STATUS	26
TABLE 2. METHODS EACH ALTERNATIVE USES TO ENSURE EACH OBJECTIVE IS MET	27
TABLE 3. SUMMARY COMPARISON OF IMPACTS	29

FIGURES

FIGURE 1. REGIONAL LOCATION	2
FIGURE 2. ASSESSOR'S PARCEL MAP	3
FIGURE 3. PROJECT LOCATION AND ACCESS	4
FIGURE 4. TOPOGRAPHIC MAP	17
FIGURE 5. GEOLOGIC MAP OF THE PROJECT AREA	32
FIGURE 6. GEOLOGIC CROSS-SECTION ACROSS TOWNE PASS.....	32
FIGURE 7. WATERSHED MAP.....	35
FIGURE 8. GRAIN SIZE DISTRIBUTION CURVE.....	36

This page intentionally left blank.

I. PURPOSE AND NEED FOR ACTION

The National Park Service (NPS) is the lead agency in considering permitting the reactivation of the Towne Pass Material Site #218 for use by the California Department of Transportation (Caltrans). This aggregate materials pit is located on NPS-administered land within Death Valley National Park (DEVA). It is adjacent to and south of California State Highway (SR) 190 at mile marker 68.5, approximately one mile south of Towne Pass (Figure 1). This property is also identified as Inyo County Assessor's Parcel Number 32-160-00 (Figure 2). The project site is located on the Panamint Butte USGS 7.5 minute Topographic Map in Township 18 South, Range 43 East, in the Northwest ¼ of Section 12, MDBM (Figure 3). The center of the project site is located at latitude 36° 23' 11" North, longitude 117° 16' 28" West.

This borrow pit has remained idle for the past ten years following the passage of the 1994 California Desert Protection Act, which transferred control of the site from the Bureau of Land Management (BLM) to the NPS. Prior to this transfer, Caltrans developed and used this material site as a source of sand and gravel for road construction and maintenance of SR 190.

A. PURPOSE

The purpose of this project is to provide the materials necessary to maintain SR 190 in a manner that is both cost-effective and that ensures that materials used for road repair within the park will be of a native variety with locally derived endemic organic and inorganic constituents.

B. NEED

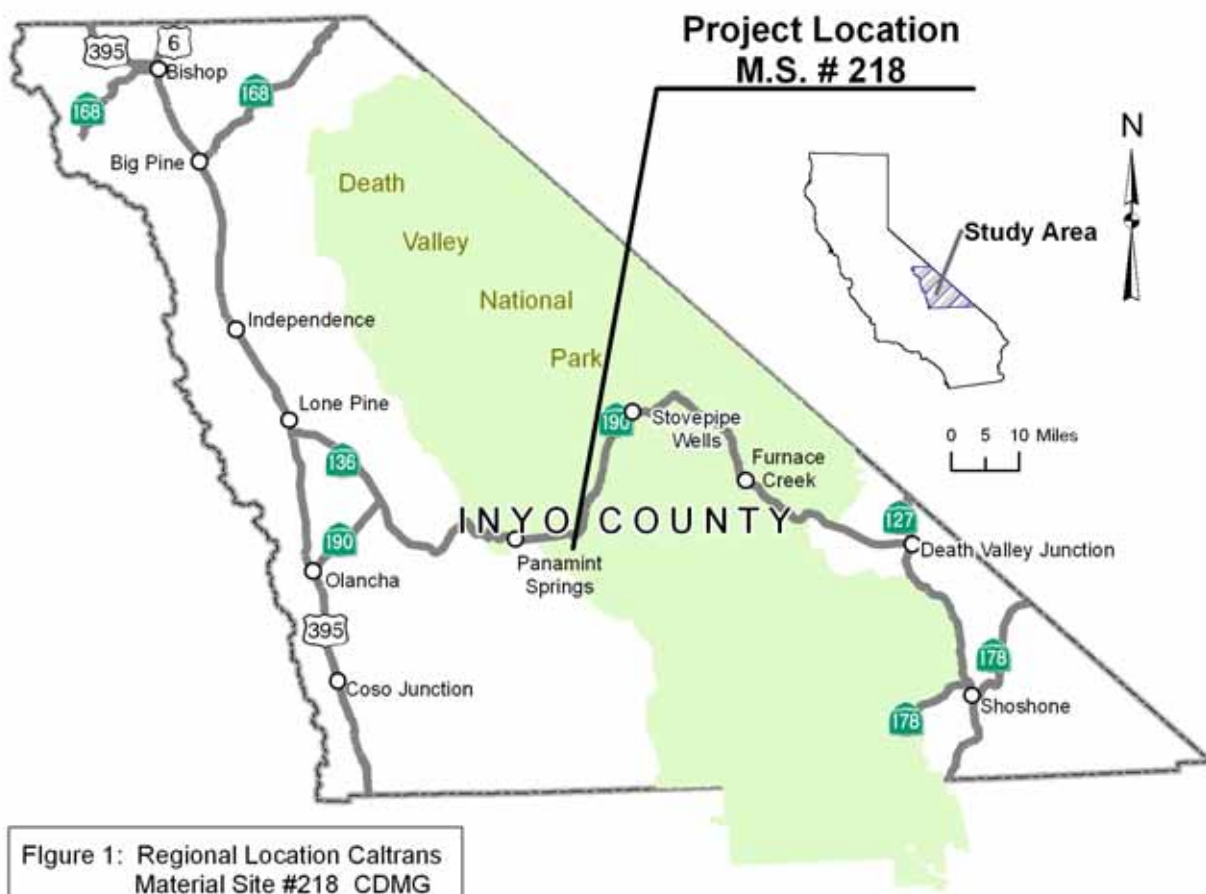
This action is needed because there are no other readily available material sites along State Route (SR) 190 within the Park's boundaries at a reasonable distance from the primary point of use (the western slope of Towne Pass). Currently the material necessary to maintain and repair SR 190 in the vicinity of Towne Pass must be obtained at elevated cost either from Pahrump, Nevada or the communities of Shoshone or Keeler, California. Not only are these options prohibitively expensive, the use of material from outside of the park increases the chance that non-native pest species will be introduced into the park environment despite ongoing materials import inspections by the park.

It is possible that major realignment of SR 190 will be necessary in the near future in order to correct failing road cuts and provide for greater safety. The current General Management Plan for Death Valley National Park states that the NPS will request from Caltrans a review of the alignment of SR 190 near Stovepipe Wells (2002:59). If approved, these activities will be vastly more expensive and protracted if they depend on sand and gravel that must be imported from outside of the park.

C. RELATIONSHIP OF THE PROPOSED ACTION TO PREVIOUS PLANNING EFFORTS

The DEVA General Management Plan (2002) states that "[t]he use of borrow sources for road maintenance will be evaluated during the preparation of the road management plan" (2002:66). Such a plan has not yet been developed, necessitating the completion of this environmental assessment. The proposed action will be in compliance with the NPS Management Policies (2006), specifically Section 9.1.3.3 – Borrow Pits and Spoil Areas.

This EA only examines the Towne Pass Material Site #218 and its associated impacts. Any

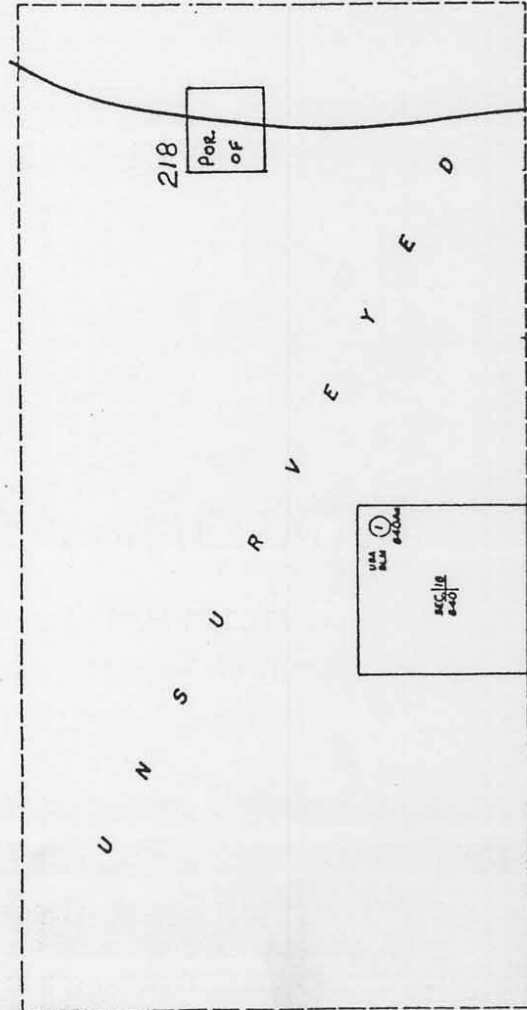


32-16

TAX RATE AREA
59-006

N 1/2 T 18 S, R. 43 E, M. D. B. B. M.

04



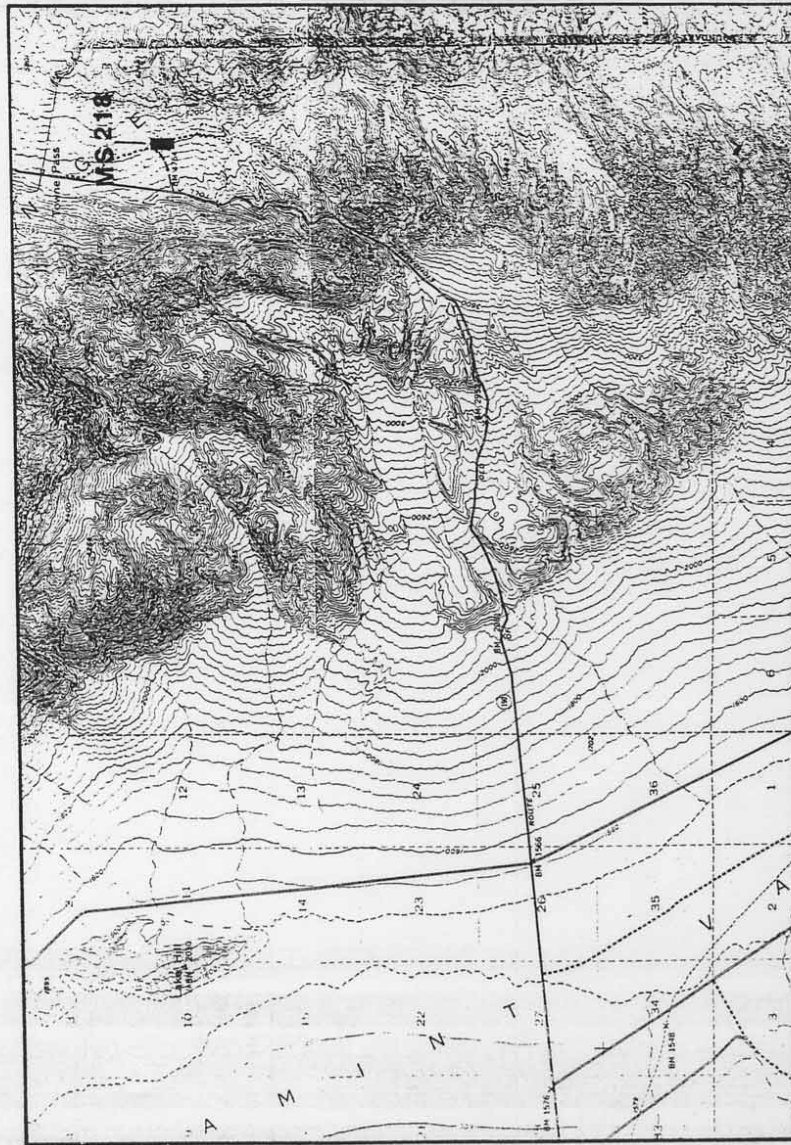
18

17

Project Location M.S.# 218

Assessor's Map No. 32-16
County of Inyo, Calif.
1990

Figure 2: Assessors Parcel Map Caltrans
Material Site #218 CDMG



Modified from USGS 7.5-minute Panamint Butte Quadrangle. (Provisional Edition 1986)

Figure 3: Project location and Access.
Caltrans Material Site #218.

other proposed material sites requested by Caltrans within the park will be the subjects of additional EAs or the Road Management Plan, and is beyond the scope of this document. Additional permits such as a stormwater discharge permit from the Lahontan Regional Water Quality Control Board and Air Quality emissions permits from either the Inyo County Environmental Health Services or Regional Air Quality Control Board lie beyond the scope of this document and will be the responsibility of Caltrans.

D. MANAGEMENT AUTHORITIES

In completing this EA, the NPS has maintained conformity with the following:

National Park Service Organic Act

The key provision of the legislation establishing the National Park Service, referred to as the 1916 Organic Act is:

The National Park Service shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations hereinafter specified . . . by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations (16 USC 1).

The Organic Act prohibits actions that permanently impair park resources unless a law directly and specifically allows for the action(s). An action constitutes an impairment when its impacts “harm the integrity of park resources or values including the opportunities that otherwise would be present for the enjoyment of those resources and values (NPS Management Policies 2006 1.4.3).

1970 National Park Service General Authorities Act (as amended in 1978 – Redwood amendment)

This act prohibits the National Park Service from allow any activities that would cause derogation of the values and purposes for which the parks have been established (except as directly and specifically provided by Congress in the enabling legislation for the parks). Therefore, all units are to be managed as national parks, based on their enabling legislation and without regard for their individual titles. Parks also adhere to other applicable federal laws and regulations, such as the Endangered Species Act, the National Historic Preservation Act, the Wilderness Act, and the Wild and Scenic Rivers Act. To articulate its responsibilities under these laws and regulations, the National Park Service has established management policies for all units under its stewardship.

National Environmental Policy Act (NEPA) (42USC 4341 *et seq.*)

NEPA requires the identification and documentation of the environmental consequences of federal actions. Regulations implementing NEPA are set for by the President’s Council on Environmental Quality (40 CFR Parts 1500-1508). CEQ regulations establish the requirements and process for agencies to fulfill their obligations under NEPA.

National Park Service Management Policies (2006)

Regarding the use of borrow pits, the NPS management policies states that “Materials from

borrow pits, quarries, and other clay, stone, gravel, or sand sources on NPS lands, including submerged lands, will be extracted and used only:

- By the NPS or its agents or contractors;
- For in-park administrative uses;
- After compliance with NEPA, including written findings that extraction and use of in-park borrow materials does not, or will not, impair park resources or values, and is the park's most reasonable alternative based on economic, environmental, or ecological considerations; and
- After compliance with other applicable federal, state, and local requirements.

“Parks should use existing pits, quarries, or sources ... only after developing and implementing a park-wide borrow management plan that addresses the cumulative effects of borrow site extraction, restoration, and importation” (2006:128).

Death Valley National Park does not currently have a borrow management plan and is not actively in the process of producing one.

California Desert Protection Act of 1994, Public Law 103-433

The California Desert Protection act of 1994 established Death Valley as a National Park, rather than a National Monument, and expanded the boundaries from what had been previously established. Jurisdiction of the land was transferred from the Bureau of Land Management to the National Park Service. This land was added because it was found that “the monument boundaries established in the 1930s exclude and thereby expose to incompatible development and inconsistent management, contiguous Federal lands of essential and superlative natural, ecological, geological, archeological, paleontological, cultural, historical, and wilderness values.”

Death Valley National Park General Management Plan (2002)

The General Management Plan states that: “Death Valley National Park dedicates itself to protecting significant desert features that provide world class scenic, scientific, and educational opportunities for visitors and academics to explore and study.” The primary purposes of the park include:

- The preservation of the scenic, geologic, and natural resources and the perpetuation of the significant and diverse ecosystems of the California desert in their natural state;
- The preservation of cultural resources associated with prehistoric, historic, and contemporary Native American culture, patterns of western exploration and settlement, and mining endeavors;
- The provision of opportunities for compatible outdoor recreation and the promotion of the public's understanding of the California desert through the interpretation of natural and cultural resources; and
- The retention and enhancement of opportunities for scientific research in undisturbed ecosystems.

With regards to roads, the DEVA GMP States that: “The management philosophy will be to protect cultural and natural resources, enhance visitor experience while providing for safe and

efficient accommodation of Park visitors.” With regards to the realignment of Highway 190 at Stovepipe Wells, the GMP states that a review of the alignment will be requested from Caltrans and that the intent of the possible realignment would be to decrease the potential for pedestrian/vehicle accidents near the gas station (2002:59).

E. IMPACT TOPICS

Issues and concerns affecting the proposed action were identified by specialists in the NPS and Caltrans. The issues and concerns identified in the planning stage allowed this environmental assessment to focus on those topics that have the greatest potential to be affected by the proposed project activities. Natural resource impacts were identified including potential impacts to the geology, hydrology and water quality, soils, vegetation, wildlife and wildlife habitat, and threatened and endangered species. Cultural resource impacts were also identified, specifically impacts to archeological resources. The final potential impact addressed was visitor experience.

Derivation of Impact Topics

Impact topics are the resources of concern that could be affected by the range of alternatives. Specific impact topics were developed to ensure that alternatives were compared on the basis of the most relevant topics. The following impact topics were identified on the basis of federal laws, regulations, orders, and National Park Service Management Policies, 2006. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration. A 30-day public scoping period was completed with no comments submitted for consideration. A summary of this process is provided in section V. Consultation and Coordination.

IMPACT TOPICS SELECTED FOR DETAILED ANALYSIS

Geologic Resources

An unreclaimed borrow pit already exists at the proposed project location. Under the no-action alternative, there will not be any further materials extraction activities or any reclamation activities at this location. There would be no further disturbance to the geology, but there would also be no amelioration of the existing conditions. The proposed action involves ground-disturbing activities within a previously disturbed area. Geologic materials would be impacted through disturbance and excavation. Therefore, geology will be addressed as an impact topic in this environmental assessment.

Hydrology (Water Quality)

The 1972 Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation’s waters; to enhance the quality of water resources; and to prevent, control, and abate water pollution. National Park Service Management Policies 2006 provide direction for the preservation, use, and quality of water in national park units. There are no perennial streams or springs within the project corridor, but existing drainages would be altered as part of the mitigation process, specifically to provide for sediment control. Therefore, hydrology and water quality will be addressed as an impact topic in this environmental assessment.

Soils

An unreclaimed borrow pit already exists at the proposed project location. Under the no-action alternative, there will not be any further materials extraction activities or any reclamation

activities at this location. There would be no further disturbance to the soils, but there would also be no amelioration of the existing conditions. The proposed action involves ground-disturbing activities within a previously disturbed area. Soils in the project area would be impacted through disturbance, redistribution, and potential loss through erosion. Therefore, soils will be addressed as an impact topic in this environmental assessment.

Vegetation

National Park Service policy is to protect the components and processes of naturally occurring biotic communities, including the natural abundance, diversity, and ecological integrity of plants and animals (NPS Management Policies 2006). Under the no-action alternative, materials from outside the Park boundaries will continue to be used for road maintenance activities along the Towne Pass section of SR 190, creating the potential for the introduction of non-native species to the park environment. The proposed action involves ground-disturbing activities with the potential to disturb, remove, and eliminate vegetation in the project area; therefore, vegetation will be addressed as an impact topic in this environmental assessment.

Wildlife and Wildlife Habitat

National Park Service policy is to protect the components and processes of naturally occurring biotic communities, including natural abundance, diversity, and ecological integrity of plants and animals (NPS Management Policies 2006). Under the no-action alternative, impacts to wildlife would be limited to those associated with the current borrow pit. The proposed reactivation of the existing material site would involve increased human activity, noise, and ground-disturbing activities with the potential to disturb wildlife or their habitat. Therefore, this impact topic is addressed in this environmental assessment.

Threatened and Endangered Species

The Endangered Species Act (1973), as amended, requires an examination of impacts on all federally listed threatened or endangered species. National Park Service policy also requires examination of the impacts on federal candidate species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species. Within DEVA, there are confirmed populations or habitats for 21 state or federally recognized species of concern. Therefore, threatened or endangered species and species of special concern were retained as impact topics in this environmental assessment.

Archeological Resources

The area where MS #218 is located is within the territory traditionally attributed to the Owens Valley Paiute, Kawaiisu, and Western Shoshone. Currently, alluvial fans and dry lake shorelines dominated by low, open sagebrush and creosote scrub vegetation communities characterize the present area.

Prior to field surveys a literature search was conducted. The National Register of Historic Places (1979 and updates through 1991), the California Inventory of Historic Resources (1976), California Historical Landmarks (1990), Archaeological Site Records, and the Eastern Information Center, University of California, Riverside (May, 1992) were consulted for previous site records. The record search indicated that MS #218 was an area of low site density and no artifacts were previously recorded.

In July of 1992, 40 acres including MS #218 and the surrounding area were surveyed. During

the field survey the material site locale was inspected using a series of parallel compass-line transects 15-20 meters apart in undisturbed areas. Severely disturbed areas such as borrow pits and mixing tables were inspected using transects spaced 40-50 meters apart.

Once the cultural studies were conducted it was determined that only lithic isolates were present in the study area. However, if previously unknown cultural resources are encountered during the course of extracting or processing materials at the material site, Caltrans policy requires that work be halted until the discoveries are evaluated by a qualified cultural resources professional and the provisions of 36 CFR 800 have been met. Because this project has the potential to impact as-of-yet undiscovered archeological resources present in the project area, archeology is retained as an impact topic.

Visitor Experience

The material site is barely visible from SR 190. At present, a pit already exists at this location. Under the no-action alternative, the pit would continue to exist and would not be reclaimed. Under the proposed alternative, the pit would be utilized, but not in a way that would impact visitor experience beyond that of the no-action alternative. Additionally, it would eventually be reclaimed, decreasing its visibility from SR 190. Thus, the degree and duration of the project would be negligible relative to existing conditions. Visitor experience was therefore dismissed as an impact topic.

During the operational phase, transportation by employees to the site will not increase traffic on SR 190 significantly. Transportation of aggregate resources to road construction locations will not increase traffic on SR 190 except during periods of emergency road repairs. It is estimated that during emergency repairs, three trucks will make 1-5 round trips per day. Transportation during concurrent reclamation activities will not add appreciably to the extraction operations affects.

IMPACT TOPICS DISMISSED FROM DETAILED ANALYSIS

Issues and concerns affecting this project were identified by NPS specialists, as well as from the input of other federal, state, and local agencies. After initial scoping, issues and concerns were distilled into distinct impact topics to facilitate the analysis of environmental consequences, which allows for a standardized comparison between alternatives based on the most relevant information. The impact topics were identified on the basis of federal laws, regulations, and orders; NPS Management Policies (1999); and NPS knowledge of limited or easily impacted resources. The rationale for dismissing specific topics from further consideration is given below.

Floodplains and Wetlands

Executive Order 11988 (Floodplain Management) requires an examination of impacts to floodplains and potential risk involved in placing facilities within floodplains. NPS Management Policies, Director's Order 2: Planning Guidelines, and Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision-making provide guidelines for proposed actions in floodplains. Executive Order 11990 (Protection of Wetlands) requires an examination of impacts to wetlands. There are no wetlands within the project area as defined by the U.S. Army Corps of Engineers. Three intermittent drainages enter the project area; two of these are intersected by the extraction area. Under the no-action alternative, the existing site would not be modified. Under the proposed action, the final reclaimed site would vary only slightly from their current conditions. Therefore, wetlands and floodplains were dismissed as impact topics.

Ethnographic Resources

Ethnographic resources are defined by the NPS as “subsistence and ceremonial locales and sites, structures, objects, and rural and urban landscapes assigned cultural significance by traditional users” (Director’s Order 28). American Indian tribes traditionally associated with DEVA include the Western Shoshone (also known as the Panamint, Koso, or Timbisha Shoshone) in the central and northern half of the park, the Kawaiisu in the southern half, and the Southern Paiute in the extreme southern end of the valley. The National Park Service would consult with these tribes and copies of the environmental assessment would be forwarded to each affiliated tribe or group for review or comment. If subsequent issues or concerns are identified, appropriate consultations would be undertaken. Because it is unlikely that ethnographic resources would be affected, and because appropriate steps would be taken to protect any human remains, funerary objects, sacred objects, or objects of cultural patrimony inadvertently discovered, ethnographic resources was dismissed from detailed analysis.

Cultural Landscapes

According to the National Park Service’s Cultural Resource Management Guideline (Director’s Order 28), a cultural landscape is “a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values.”

Many cultural landscapes exist within the park. Cultural landscape studies have been completed at Cow Camp, Wildrose, and Hungry Bill’s Ranch. Landscapes associated with Scotty’s Castle, Lower Vine Ranch, the Salt Tram in Saline Valley, and the Civilian Conservation Corps-era administration buildings are considered particularly important. A cultural landscape study is ongoing at Scotty’s Castle. Other cultural landscapes include the Timbisha Shoshone village, various mining sites, Harmony Borax Works, and cultivated orchards, gardens, and groves related to ranching and resorts. None of these landscapes are within the project area; therefore, this topic was dismissed from further analysis.

Museum Objects

Museum collections include historic artifacts, natural specimens, and archival and manuscript material contained in collections held by the park in designated storage or display areas. They may be threatened by fire, vandalism, natural disasters, and careless acts. The preservation of museum collections is an ongoing process of preventative conservation, supplemented by conservation treatment when necessary. The primary goal is preservation of artifacts in as stable condition as possible to prevent damage and minimize deterioration. The proposed activities at MS #218 would not affect any designated storage or display areas for museum objects of DEVA; therefore, museum objects was dismissed as an impact topic.

Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska native tribes. There are no Indian trust resources in DEVA. The lands comprising the park are not held in trust by the Secretary of the Interior for the benefit of

Indians due to their status as Indians. Therefore, Indian trust resources were dismissed as an impact topic in this environmental assessment.

Wilderness

In 1994, under the California Desert Protection Act, nearly 95% of DEVA was designated as wilderness under the Wilderness Act of 1964. The current project area is not, however, within the wilderness boundary. Towne Pass Materials Site 218 is XXX feet from the wilderness boundary. It has been determined that impacts from fugitive dust drift into wilderness would be negligible (see Air Quality section below, p. 12). Therefore, this impact topic has been dismissed from further consideration.

Soundscapes

In accordance with NPS Management Policies 2006 and Director's Order 47: Sound Preservation and Noise Management, an important part of the National Park Service mission is preservation of natural soundscapes associated with national park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among National Park Service units, as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas. Under the no-action alternative, there would be no additional noise beyond what is currently associated with the use of SR190.

The proposed action involves some activities that could contribute to the ambient noise level during periods when the material site is being used. Material extraction operations may include the use of a D8, loaders, belly dumps, bobtail trucks, haul trucks, and a maintenance truck. Processing activities will likely include a "grizzly" screening plant, which is a portable separation screen that requires no power to operate and separates minerals based upon particle size. This aspect of the operations will generate noise. Noise emissions associated with the proposed action will be most heavily concentrated within the processing area of the site, and will be shielded from surrounding receptors by the pit walls. Both the physical walls of the pit and the large distance to receivers will reduce the potential noise impact from production activity. In addition, the site is far from towns or homes, and will be used only infrequently for road maintenance.

Effective source strength of a rock plant is around 72-75 dB at 400 feet. Earth-moving activities would typically generate estimated noise levels of 75 and 80 dB at a distance of 50 feet with noise control devices for dozers and scrapers. In combination, the noise exposure at a distance of 2,000 feet (there are no structures within 2,000 feet of the site) would be reduced to approximately 60 dB, which is below most standards for noise-sensitive land-uses. Noise generated from the concurrent reclamation activities (grading and re-vegetating) will not be perceivable against the noise generated by the operations activities. Because the noise associated with the proposed action would be of short duration and below most standards for noise-sensitive land uses, soundscapes were dismissed as an impact topic.

Visual Resources

The material site that already exists at the project location will remain whether the no-action or

proposed action is chosen. The proposed action would have only a negligible impact on visual resources. The material site is barely visible from SR 190. The existing color of the site is caused by bare substrates and a change in the density of the vegetation. These changes will be moderated by reclamation activities. Reshaping of the site and re-vegetation with native species will integrate the site with the surrounding area, thereby resulting in a low level of visual change to the characteristic landscape. Reclamation will achieve visual management objectives. Therefore, visual resources were not carried forward as an impact topic.

Air Quality

The 1963 Clean Air Act, as amended (42 United States Code (USC) 7401 et seq.), requires land managers to protect air quality. Section 118 of the Clean Air Act requires parks to meet all federal, state, and local air pollution standards. Section 176 (c) of the 1963 Clean Air Act requires all federal activities and projects to conform to state air quality implementation plans to attain and maintain national ambient air quality standards. NPS Management Policies 2006 addresses the need to analyze potential impacts to air quality during park planning. DEVA is classified as a Class II “floor” air quality area under the Clean Air Act, as amended, which means it may never be redesignated to Class III (NPS 2002).

The project area is located in the Great Basin Unified Air Pollution Control District, as established by the state of California. This district is classified as a California state non-attainment area for particulate matter (fine dust) less than 10 microns.

The general trend in upper air movement carries pollutants to DEVA from metropolitan areas, industrial areas, and transportation corridors located to the west. In the summer, surface winds are from the southwest, where sources that contribute to pollution in the park include major population centers, industrial areas, and a dry lake bed. In winter, surface winds come from the northeast. Because these winds bring an air mass that originates in less developed areas, the air quality of DEVA is generally better in the winter (NPS 2003b).

Should the preferred alternative be selected, local air quality would be temporarily affected by dust and construction vehicle emissions on the occasions when the materials site was in use. Mineral extraction operations may include the use of a D8, loaders, belly dumps, bobtail trucks, haul trucks, and a maintenance truck. Processing activities will likely include a “grizzly” screening plant, which is a portable separation screen that requires no power to operate and separates minerals based upon particle size. This aspect of the operations will generate emissions. Operating equipment during operations phases would result in increased vehicle exhaust and emissions. Hydrocarbons, nitrogen oxide, and sulfur dioxide emissions would be expected to be rapidly dissipated.

Fugitive dust plumes from construction equipment would intermittently increase airborne particulates in the area near the project site, but loading rates are not expected to be considerable. Air quality parameters that are potentially affected by operations are vehicular emissions and suspended particulate, or dust. Operations should not significantly increase vehicular traffic on SR 190. Increased emissions would emanate from the site during the active extraction phase. Reclamation activities will not cause an increase in vehicular emissions.

Because the soil disturbance from material processing, extraction, and hauling is a “fresh” disturbance, the major component of the produced dust will be of large particle size (greater than 10 microns), which settles out rapidly. Best available control technology, such as maintaining a

moist aggregate surface, will be used to suppress processing, extraction, and hauling dust sources. Reclamation activities, such as reseeded and re-soiling with topsoil mixed with vegetative debris, will also help to control dust.

Overall, there would be slight and temporary degradation of local air quality at times when the material site was in use due to extraction activities and emissions from associated equipment. These effects would last only during the short periods of activity at the site; impacts would therefore be negligible and short term. Therefore, air quality was dismissed as an impact topic in this document.

Designated Critical Habitat, Ecologically Critical Areas, Wild and Scenic Rivers, Other Unique Natural Areas

No areas within this project area are designated as critical habitat or ecologically critical (NPS 2002), nor are there any existing or potential wild and scenic rivers within the project area (NPS 2004). DEVA is an important natural area, but the proposed action would not threaten the associated qualities and resources that make the park unique. The topic was, therefore, dismissed from detailed analysis.

Park Operations

Effects on park operations from the proposed action would be negligible. Increased staff or additional equipment would not be required, nor would additional maintenance activities. Therefore, park operations have been dismissed as an impact topic.

Socioeconomic Environment and Land Use

Both the no-action and preferred alternative would not change local or regional land use, and would it appreciably affect local businesses outside of DEVA. Implementation of the preferred alternative could provide a negligible adverse impact to the economies of Inyo and Nye Counties in that gravel and sand will not be purchased from providers in Shoshone and Keeler, California or Pahrump, Nevada. Because this effect would be less than minor, socioeconomics was dismissed from detailed analysis.

Prime and Unique Farmland

In 1980, the Council on Environmental Quality directed federal agencies to assess the effects of their actions on farmland soils classified as prime or unique by the United States Department of Agriculture, Natural Resources Conservation Service. Prime or unique farmland is defined as soil, which particularly produces general crops such as common foods, forage, fiber, and oil seeds unique farmland produces specialty crops such as fruits, vegetables, and nuts. There are no areas or soils where unique crops are produced within the park boundary; therefore, this topic was dismissed from detailed analysis.

Environmental Justice

Executive Order 12898 (General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations) requires all agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations or communities. No alternative under consideration would have health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's Draft Environmental Justice Guidance (July 1996).

Environmental justice was, therefore, dismissed from detailed analysis.

Health and Safety

The primary health and safety issue associated with this project is the presence of the pit. The materials pit already exists and will remain whether the no-action or proposed action is chosen. Under the proposed action, final reclamation activities will ensure that the final side slopes will be no steeper than 3:1 (H: V), significantly less than the angle of repose for loose stockpile material. Because the current conditions would be only slightly modified regardless of the action that is chosen, health and safety was dismissed as an impact topic.

II. ALTERNATIVES CONSIDERED

The alternatives section describes two management alternatives for the Towne Pass Material Site. Alternatives for this project were developed to explore ways in which to obtain the materials necessary for the maintenance and repair of SR 190.

In addition to the no-action and proposed alternative, additional alternatives considered and dismissed from detailed analysis are also discussed in this section.

A. NO-ACTION ALTERNATIVE

Under this alternative, the existing Towne Pass Pit #218 will remain idle and Caltrans would continue to use the material pits located outside of the Park's boundaries. Currently, these sources are:

1. Keeler M S #300: This material site is located on BLM lands approximately 2.0 miles south of the community of Keeler on the north side of SR 136 at mile marker 15.5. It is located in the east ½ of section 15, Township 17 South, Range 38 East, MDB&M. Located approximately 50 miles from MS #218.
2. Shoshone M S #182: This material site is located on Bureau of Land Management (BLM) lands approximately 2.5 miles east of the community of Shoshone on the south side of SR 178, in Section 21, Township 22N, Range 7E, SBB&M. Located Approximately 112 miles from MS #218.
3. Wulfenstein Construction Company, Inc.: located at 1111 South Highway 160 in Pahrump, Nevada. Provides a full range of products including virtually all types of sand, gravel, concrete, and asphalt. The site is located in the State of Nevada approximately 100 miles from MS #218.

Under the no-action alternative, there would be no reclamation of the existing Towne Pass Material Site. The existing site measures approximately 1,320 by 650 feet and occupies approximately 20 acres of NPS lands. Approximately seven acres in the northern half of the site have been disturbed during previous operations. These features would remain in their current condition. Caltrans would continue to import non-native road material from outside the park at an elevated cost due to excessive transport costs.

B. PROPOSED ACTION and PREFERRED ALTERNATIVE

Background

The proposed action is to reopen the existing, now idle, Towne Pass MS (MS) #218. It is

estimated that prior to 1992, 50,000 cubic yards (CY) of material were removed from this location. Approximately seven acres in the northern half of the site have been disturbed during previous operations, resulting in an open aggregate materials pit.

This aggregate materials pit is located on NPS-administered land within DEVA. The pit is adjacent to and south of SR 190 at mile marker 68.5. It is approximately one mile south of Towne Pass. This property is also identified as Inyo County Assessor's Parcel Number 32-160-00. The project site is located on the Panamint Butte USGS 7.5' Topographic Map in Township 18 South, Range 43 East, in the Northwest 1/4 of Section 12, MDBM. The center of the project site is located at latitude 36° 23' 11" North, longitude 117° 16' 28" West.

Access to the site is via an unmarked unpaved road leading southeast from SR 190 at mile marker 68.5, approximately 13 miles east of Panamint Springs and 18 miles west of Stove Pipe Wells.

Figure 4 depicts the site's location in the southeast portion of USGS 7.5-minute Panamint Butte Quadrangle (Provisional Edition, 1986). The material site and the surface disturbance that resulted from previous operations at this site are not shown on the topographic map. Elevations within and around the site were surveyed on October 2, 1992. As shown on the topographic map, the site has a gentle slope of about 8° to the west-southwest. Elevations at the site range from approximately 5,080 feet in the east to about 4,945 feet in the southwest, producing approximately 135 feet of relief. Approximately ¼ mile to the east of the site, the topography becomes much steeper down the range front. The topographic map also shows the natural drainage patterns of the site. Three intermittent stream drainages enter the site; the extraction area intersects two of these.

Proposed Operations

The site will be operated in the area that is previously disturbed. A 50-foot setback from the property boundary will be established. Operations will not occur within the setback area; they will be confined in the area that supports the majority of the current disturbance. As shown on Figure 3, access to the operations area will be from SR 190 at milepost 68.5 along the existing unpaved road southwest of the site. No permanent buildings or equipment will be constructed on site as part of the extraction operations.

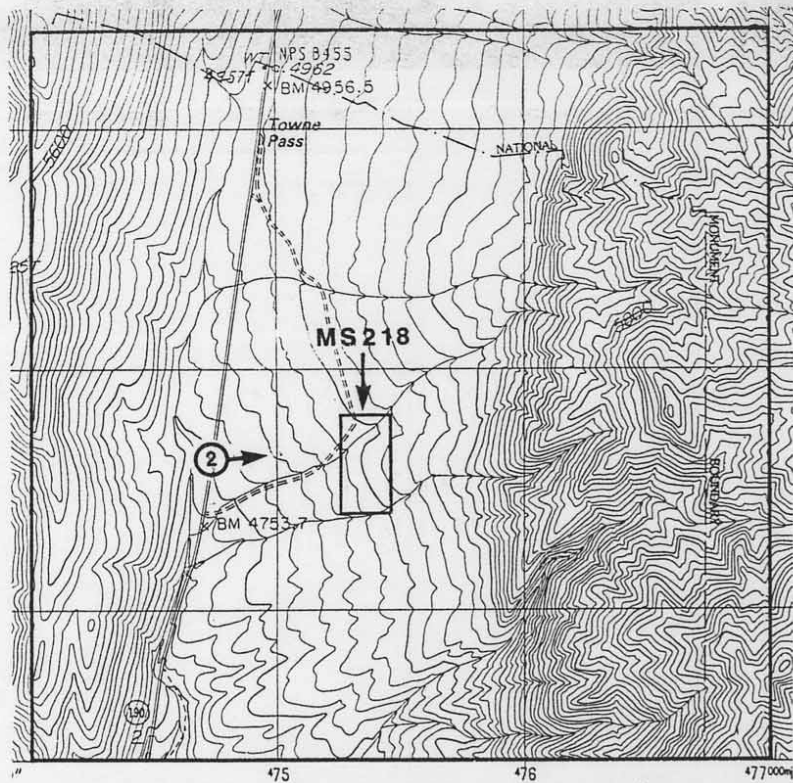
Operations at this site will take place on an intermittent basis over the next 20 years. The NPS determined 20 years to be a reasonable period of use for the site based on park needs, monitoring requirements, and Caltrans requirements. The Towne Pass Materials Site will be reclaimed at the end of this period.

While the Towne Pass site is in active use, material will be extracted on an as-needed basis. Material extraction operations may include the use of a D8, loaders, belly dumps, bobtail trucks, haul trucks, and a maintenance truck. Extraction will begin east of the stockpile area shown on Map Sheet 3. Material will be stockpiled in the western portion of the operations area and the screening plant will be located northeast of the stockpile area. Material extraction will proceed to a depth of no greater than 50 feet in the northeast portion of the site. Slopes within the site will be no greater than 3:1 (H: V). A 50-foot setback from the property boundary will be implemented for all extraction activity. Extraction will be excluded from the previously undisturbed southern half of the site; it will commence and move north from the southern edge of

the previously disturbed area.

Processing activities will likely include a “grizzly” screening plant, which is a portable separation screen that requires no power to operate and separates minerals based upon particle size. This aspect of the operations will generate noise and emissions. A portable screening operation may be moved onto the site during periods of operation. Useable and unusable material will be separated at the screening plant and stored in the stockpile area. Useable material will eventually be transported off site. Fine-grained unusable road maintenance material will be stockpiled for use in reclamation. Unusable material is estimated to compose five per cent of the extracted volume, which is more than the amount of waste needed for re-soiling (see Mitigations, below).

Aggregate production consumes energy in a number of ways. The vehicles used to extract and transport the material use petroleum fuels and lubricants, and the processing equipment



Modified from USGS 15-minute Panamint Butte Quadrangle (Provisional Edition 1986)

② → Photo 2 point location

0 1 MILES
SCALE

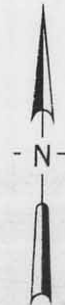


Figure 4: Topographic Map.
Caltrans Material Site #218.

consumes electricity.

The amount of fuel used to deliver aggregates to construction sites will be dependent on the haul distance and per mile consumption. The amount of fuel consumed varies with the size of the load, miles traveled, and the number of stops and turns along the route. Fuel use within the site for extraction activities will be more constant. During extraction operations, diesel fuel will be stored on site for on-site activities in an above-ground fuel tank. The tank will be situated within a Lahontan Regional Water Quality Control Board-approved containment basin. Caltrans will adhere to all applicable and appropriate best management practices. A complete HazMat plan can be obtained from the Park upon request. Fuel use associated with reclamation activities will be insignificant in comparison to fuel use for operations activities, and will not require on-site storage.

Electricity will be needed at the plant for washing, screening, and mixing operations. A standard trailer-mounted, portable, diesel generator will likely be provided to produce the needed electricity. Use of generator facilities will take place during daylight hours on an as-needed basis. Electricity will not be needed for reclamation activities.

Water requirements for this site will be limited to that needed for processing and dust control. Water will be purchased from a potable water source and trucked to the site; the water will not be grey water. The only type of wastewater to be produced by this proposed operation will be processing and screening water that will be collected in the sedimentation basins and allowed to evaporate or infiltrate. Water use during operational phases is estimated at 2,000 gallons per day. Bottled water will be trucked to the site to provide safe drinking water for employees. During operations commercial, self-contained, portable toilets will be brought to the site and maintained by the commercial vendor. Water will not be used in re-vegetation efforts. Rather, the soil will be raked and native seeds spread and left to germinate on their own.

It is anticipated that a maximum of approximately 130,000 CY of sand and gravel and unusable material will be extracted over the next 20 years. The average anticipated extraction volume is estimated to be 4,000 CY, with a maximum annual extraction volume of 40,000 CY.

The measures implemented during the initial site reclamation phase (see Mitigations, below) will remain in use during the extraction phase. The only adjustments made will be extending the large drainage ditch along the base of the north slope and moving the grade stabilization structure in the northeast corner of the site to the east as operations progresses.

The hours of operation have the potential to be 24 hours per day, seven days per week, on an intermittent, emergency-maintenance-use basis. Most use will occur during regular business hours of 7AM to 5PM, Monday through Friday, primarily during daylight hours. It is estimated that this operation will employ 2-3 people.

During the operational phase, transportation by employees to the site will not increase traffic on SR 190 significantly. Transportation of aggregate resources to road construction locations will not increase traffic on SR 190 except during periods of emergency road repairs. It is estimated that during emergency repairs, three trucks will make 1-5 round trips per day. Transportation during concurrent reclamation activities will not add appreciably to the extraction operations affects.

This section is an accurate overview of the Caltrans Plan of Operations. A complete Plan of

Operations can be obtained from the Park upon request.

The termination date for this proposal is 20 years from the date approval. Renewal of this activity may be sought after the termination date if the demand for the minerals is delayed. Renewal will only be granted if there is an advance indication that the need for materials will continue. After the completion of the extraction phase, final site reclamation will be implemented.

Mitigations

The mitigations for this project were originally developed as a reclamation plan. This reclamation plan outlines typical reclamation treatments and site-specific techniques required before, and during operations, and at final site reclamation. These measures were developed to:

- comply with local, state, and federal laws and regulations, and mitigation measures;
- minimize wind and water erosion;
- blend the disturbed lands into the surrounding landscape; and
- to return the site to a beneficial end use.

Reclamation objectives include controlling drainage, stabilizing soils, lessening the time needed for vegetation of the site to recover, and providing an environment conducive to natural re-establishment of vegetation. This will be achieved by:

- re-contouring all disturbances to blend with surrounding topography and restoring natural drainage patterns;
- replacing topsoil or surface fines;
- loosening compacted soils to enhance water absorption and to allow greater penetration of plant root systems;
- stabilizing soils and minimizing erosion; and providing a seedbed, which will encourage natural and aided re-vegetation.

The site is contained in park non-wilderness and, aside from SR 190, is presently open space. According to various resource maps, the site does not support any designated, critical wildlife habitat. The site will be reclaimed to open space and wildlife habitat which will leave the site in a productive end use that is readily adaptable to alternative end uses, and is compatible with the land use designation.

Reclamation of this site will not preclude additional extraction operations at a future date. The aggregate resource is believed to extend beyond 100 feet deep; the current operations plan will not have exhausted on-site aggregate materials resources.

Initial Reclamation Activities

Initial site reclamation will commence and be complete within 12 months after plan approval. These activities will initiate reclamation at the earliest possible time, and minimize erosion and off-site sediment discharge during the extraction phase. Surface water flow from the drainages that enter the site from the west will be diverted through the site and into the existing drainage in the northwest corner of the site. The previously disturbed area outside the site boundary will not be further disturbed. Natural re-vegetation of this area has developed to a point that implementation of re-soiling and re-vegetation techniques would unnecessarily disturb existing

vegetation.

The following reclamation activities will be implemented:

Sediment Basin: In order to retain eroded sediment on the site, an open sediment basin will be constructed in the southwest part of the operations area.

External Drainage Control: A drainage ditch will be installed along the base of the northern pit slope to direct off-site drainage flows away from the extraction operations and into the existing drainage in the northwest corner of the site, thus minimizing on-site erosion.

Internal Drainage Control: A drainage ditch will be installed along the eastern and southern edge of the existing asphalt mixing table to direct internal flows away the extraction operations and into the open sediment basin. A material berm will be constructed along the western part of the pit to direct onsite surface runoff into the open sediment basin. The berm will be approximately 150 feet long and 2 feet in height.

Reclamation of Unpaved Road: The unpaved access road that enters the material site from the south will be reclaimed (the northern extension of this road was reclaimed in 1992). Reclamation will consist of ripping or decompaction of the surface, recontouring as required, vertical mulching and re-vegetation to NPS approved standards.

Operations-Phase Reclamation Activities

Reclamation treatments, such as the sediment basin, drainage ditches, and material berms that are installed during the initial site reclamation will be maintained during the operations phase.

Pit slopes for the operations phase and the final reclaimed site will not be steeper than 3:1 (H: V) or 18°. The angle of repose of the loose stockpile material on the site is approximately 32°. This angle can be considered to be representative of the angle of internal friction of the native gravely-sand materials. Surficial stability of dry, cohesionless sand can be calculated using the ratio of the tangent of the internal friction angle to the tangent of the slope angle. For the final 3:1 (H: V) pit slopes, a static factor of safety of 1.9 is calculated. Thus, slopes will be stable at the proposed angle under static conditions. Cut-slopes at 3:1 (H: V) in native material should be grossly stable during seismic events.

During operations, the site will be maintained in an orderly, workman-like manner. The temporary screening plant and other equipment will be removed from site within 60 days following termination of activity.

Final Reclamation Activities

In this section, the planned mitigations for topography, soils, erosion and sediment control, vegetation, and public safety will be discussed in terms of three steps: the reclamation activities, the performance standards that will be used to judge the success of reclamation, and the maintenance and monitoring that will follow the completion of reclamation.

Reclamation treatments such as re-soiling and re-vegetation will be installed when final slopes are present. Once all reclamation treatments have been implemented, those treatments will be monitored until performance standards have been met. The monitoring plan is designed to

evaluate site-specific criteria for slope stability, erosion and sediment control, and re-soiling and re-vegetation.

SMARA Section 2773(a) requires that the reclamation plan establish “site-specific criteria for evaluating compliance with the approved reclamation plan, including topography, re-vegetation, and sediment and erosion control.” The following discussion sets forth minimum site criteria, or performance standards, for the various aspects of site reclamation. A qualified individual or group of individuals, agreed upon by Caltrans and the National Park Service will conduct monitoring of reclamation performance standards.

Once the reclamation activities have been completed, monitoring activities will commence and will continue until the NPS is satisfied that performance standards have been met. Reporting of the progress of reclamation will be relayed to the NPS on an annual basis. This annual report will, at a minimum, consist of the name and credentials of the investigator(s), a summary, the date of the visit(s), the methods and materials used, the data collected, an analysis of the data and performance standards, and any suggested remedial measures. Site maintenance and monitoring will continue until the NPS deems the reclamation complete.

At final reclamation, there will be no equipment or asphaltic materials remaining on the site.

Topography and Drainage

The final site configuration will, in general, be a square-shaped pit-type excavation into the surface, not greater than 50 feet deep, with side slopes no steeper than 3:1 (H:V). All asphaltic materials within the pit will be removed and disposed of in an appropriate off-site location. The entry to the access road will be blocked and the road will be reshaped and reclaimed to blend with the surrounding topography. Topsoil and vegetative debris (termed “duff”), and fines will be applied to this landform, straw will be crimped or punched into the surface, where needed, and a native seed mixture will be incorporated into the site.

The sedimentation basin near the western side of the pit will remain in place. As indicated in the operations plan section, this impoundment will likely keep all in-pit drainage on site, even when peak precipitation events occur. Therefore, on-site surface runoff will pond in this basin and percolate into the ground. Runoff from the three drainages to the east will flow through the site, via the grade stabilization structures and the large drainage ditch and into the existing drainage to the north of the access road. Following successful re-vegetation, which will likely happen within five years after implementation, the site will no longer be prone to erosion and these structures will no longer be maintained. The grade stabilization structures will be monitored and maintained until the NPS deems reclamation complete.

Performance Standards

No pit slope shall be steeper than 3:1 (H: V), which has been determined to exceed the slope stability standard for this material for static and grossly stable under pseudostatic conditions. Only the sediment basin will have steeper slopes at 2:1(H: V), which will be stable under static conditions.

Maintenance and Monitoring

All slopes will be assessed during annual monitoring to ensure that they are stable. If excess slope erosion is observed, or failures noted, as discussed in the performance standards section,

the appropriate remedial measures will be implemented. All pit slopes will be no greater than 3:1(H: V), except for the slope of the open sediment basin.

Soils

The topsoil is defined as the upper six inches of the native surface. The native topsoil of this site is very sandy with a large amount of coarse fraction (gravel and larger) material on the surface. The topsoil also contains native seeds and soil microorganisms. While a portion of the topsoil (the larger fraction) is part of the minerals being extracted from this site, the upper six inches will be treated as an invaluable resource and salvaged, rather than as a commodity and removed from the site.

Duff is defined as the topsoil and vegetative material. Prior to operations, within the area of existing disturbance, the top six inches of the native surface and all existing vegetative material will be scraped off the operations area and stored in the stockpile areas or windrowed at the top of the excavation.

The vegetation can be either harvested and stockpiled separately; scraped at the same time as the surface material and stockpiled together; or hydroaxed, chopped, broken, or chipped and mixed into the topsoil. Any vegetative debris that measures more than ½ foot in any dimension will be stockpiled separately from the topsoil.

Since topsoil was not stockpiled prior to the excavation of the existing pit, it will be limited for final reclamation. Therefore, fines salvaged from processing and sedimentation ponds will be used to augment the amount of growth media available for reclamation. It is estimated that approximately four acre-feet of processing fines will be available for re-soiling. With an estimated seven acres that have been previously disturbed, re-soiling with fines can be as deep as six inches. All areas treated with fines, rather than with topsoil and vegetative debris, will be treated with gravel mulch.

Native surface materials will be stored in the stockpile areas or windrowed at the top of the excavation area, and will be kept separate from processing and sedimentation pond fines. Native topsoil will be spread on the slopes first with the remaining, if any, spread on the pit bottom. All other areas will receive processing and sedimentation fines. These fines will be stockpiled separately from topsoil and will be placed in the stockpile area delineated on the site plans.

Prior to spreading the growth media, all compacted areas will be de-compacted (ripped or diced) to facilitate root growth. The topsoil that was stockpiled or windrowed on the side of the pit will then be re-spread to a depth of six inches over the disturbed slopes and roughened to form a variety of microsites. Rough grading, imprinting, or other suitable method can accomplish this. Reseeding will immediately follow the spreading and roughening of the growth media. Any woody debris that was stockpiled separately will then be distributed over the site in a random manner.

Performance standards and maintenance and monitoring are discussed with erosion and sediment control, below.

Vegetation

Re-vegetation treatments of the site will strive to achieve visual integration with the surrounding

vegetation, control surface erosion, and provide wildlife habitat values. Seeding of the site will take place during the fall, between late October and December.

Reestablishment of vegetation on this site will be somewhat limited due to the droughty nature of the soil. Unlike desert vegetation at lower elevations in this region, this site supports a moderately dense (60-70 percent coverage) stand of vegetation, thereby providing some erosion control. The coarse fragments (gravel) present on the surface of this alluvial fan also provide protection from wind and water erosion. Therefore, the goal of re-vegetation of this site will be to re-establish components of the native plant community, thereby providing habitat values and integrating the site visually with the surrounding areas. Erosion control can be accomplished using the native coarse-grained soils and salvaged vegetative debris (the combination which is termed "duff").

Natural re-vegetation will occur throughout the life of the materials pit. Moreover, only some areas of the site will be used, leaving other areas to re-vegetate naturally. Caltrans will not be able to assess the site for reclamation until the use of the pit has been completed. Final reclamation will, therefore, take place after Caltrans has completed its use of the site.

As mentioned above, after re-spreading the fines, the area will be roughened to form a variety of microsites; this can be accomplished by "track walking" the site or by imprinting. The growth media will be prepared to provide a firm but not overly compacted seedbed.

Many plant species are comprised of local ecotypes that are highly adapted to the local climate and edaphic conditions (Plummer et al. 1955, 1968). The plants that will have the best chance of survival on a site are those ecotypes that are growing on (or near) that site (Millar and Libby 1989). Besides the problem of purchasing a less adaptive ecotype, one could also cause genetic contamination of the local ecotype through interbreeding with an introduced ecotype. The results of interbreeding between commercial non-local and wild local native stock can be adverse and permanent. The best policy is to collect the material from on or near the site. Therefore, plant materials will be obtained from the same region as the materials site. For the purposes of MS #218, the collection region will be defined as areas containing Mojave Desert Woody Scrub (Holland, 1986) vegetation types that occur within the Panamint Range and are between the elevations of 3,000 feet and 6,000 feet.

The following seed mix is proposed for use on all areas of this site. Changes to this seed mix will only be allowed with concurrence of the Lead Agency.

Seeding rates are given in pounds of pure live seed (PLS) per acre and are based on the above listed percent purity and germination rates. Percent PLS can be calculated from commercial or custom collected seed by the following formula:

$$\% \text{ PLS} = \frac{\% \text{ pure seed} \times \% \text{ germination}}{100}$$

If seed conforming to the requirements for purity or germination is not readily available, seed not conforming to these requirements may be used provided that the application rate for such seed is increased to compensate for the lower PLS. The seed application rate can be adjusted based on the preceding formula to compensate for germination or purity below or above that specified.

Over most of the site, the seed will be broadcast and then mixed into the top half-inch of the substrate by either raking or dragging a chain across the seedbed, or other suitable method. For areas which are treated with gravel mulch, the seed mix will be broadcast, either dry or hydrologically, onto the site prior to the application of the gravel mulch.

Five beavertail cacti (*Opuntia basilaris* var. *basilaris*) are located within the proposed extraction area. These cacti will be salvaged and transplanted on-site as part of the reclamation activities. Transplanting shall take place between August 1 and March 1. Each cactus shall be transplanted with at least six inches of its primary root intact. Standard techniques will be used for transplanting these individuals, which includes:

- marking, in some non-injurious manner, their north side prior to removal;
- storing the cacti in a shaded area for at least two weeks to allow bruised roots to heal;
- returning the cacti to the site within three months after removal and replanting in the proper orientation in a soil depression; and
- watering the cacti immediately following planting with two gallons of water treated with vitamin B-1 (for root growth).

Areas that may receive these transplants include the previously disturbed area outside of area boundary, the reclaimed road south of the existing pit, or other areas on the site that will not be further disturbed.

Prior to re-spreading processed and sedimentation fines, a soil analysis shall be required to determine the presence or absence of elements essential for plant growth. The soil analysis of the fines will be compared to a soil analysis of the native topsoil. If the soil analysis suggests that fertility levels or soil constituents are inadequate to successfully implement the re-vegetation program, a balanced, slow-release fertilizer at a rate not to exceed 100 pounds/acre or other soil amendments may be incorporated into the fines.

Native plant species tend to be slow germinators; in the interim, the re-soiled growth media would be subjected to erosion. In areas that receive native topsoil, the native vegetative debris in the topsoil will serve as mulch. For slopes and for areas that do not receive native topsoil, the exposed fines will be treated with gravel mulch. Gravel, ranging in size from a half-inch to six inches, will be spread on the exposed fines at a rate that will provide not less than 20 percent coverage and not more than 50 percent coverage. At a maximum, seven acres will be treated with gravel mulch. Straw mulch will not be used on this site because it may attract burros to the newly re-vegetated area, thereby, increasing herbivory impacts.

The species selections for this pit are native to the area and are drought tolerant. Therefore, irrigation should not be needed and is not recommended for this site. Irrigation would only serve to increase growth of weedy species, thereby increasing the competitive advantage of the weedy, exotic species. Irrigation will only be considered as part of the remedial measures.

Since there will be no installation of containerized material for this reclamation plan, protection measures are not proposed. The transplanted cacti will not need protection measures. If predation by insects and animals impact the outcome of the re-vegetation plan, individual shrubs will be caged as proposed in the remedial measures.

Russian thistle (*Salsola tragus*, a.k.a. *S. iberica*, *S. kali*, and *S. australis*) is the most prevalent non-native invasive species in the vicinity of the project area. Other non-native invasive plants are not threatening park resources in this area. If Russian thistle invades re-vegetated areas to the point that it is impacting the germination and/or growth of desired species, then this invasive exotic will be manually removed from the site as a remedial measure.

Performance Standards

The following performance standards will be applied to each phase of reclamation. Undisturbed, site-indigenous shrub cover was estimated at 60 percent to 70 percent, shrub density at six shrubs per 100 square feet, and shrub species-richness at four shrubs per 100 square feet. A cover, density, and species-richness standard will be used for this site, based on the proposed end uses of open space and wildlife habitat.

All phases of reclamation will achieve a minimum average of four perennial species and six individual perennial species per 100 square feet, and a minimum coverage of 30 percent coverage, for each area of 400 square feet or greater. The standards are based on the expected results five years after implementation. Areas found to be below these standards will be evaluated as set forth under maintenance and monitoring, below.

Five cacti were transplanted on-site as part of this reclamation plan. At final site reclamation, a minimum of three of these cacti will be surviving. If the survival rate falls below this standard, remedial measures will be taken as set forth below. If the transplanted cacti display stress, supplemental watering will continue, once a month during the summer months, for an additional year.

Maintenance and Monitoring

Re-vegetation of the site will be monitored for a minimum of five years following implementation on each area, i.e. the reclaimed road and the pit. Monitoring activities following the completion of the initial concurrent reclamation of the southerly access road will take place during the peak flowering season, approximately May. Once the monitoring date is set following these initial reclamation activities, monitoring of the site during the later phase will occur within two weeks of that original date. This scheme will assure that the data will be comparable over time.

Re-vegetation monitoring will consist of quantitative and qualitative measurements. A minimum of twenty, permanently marked, randomly placed plots (or the number of plots deemed necessary for a confidence level of 80 percent), of a minimum size of 100 square feet, will be established within each area following the completion of reclaimed treatments. Within the plots, the species composition, shrub cover, and shrub density will be recorded on an NPS-approved form. If it appears that the site will not meet the performance standards set forth above, then the investigator shall suggest remedial measures.

Erosion and Sediment Control

Erosion and sediment control will be achieved by implementation of the previously described topography and drainage and re-vegetation plans. Reinforced drainage ditches and sedimentation basins will be constructed in conformance to the drainage plan. Re-soiling and re-seeding will be performed according to the re-vegetation plan.

Performance Standards

Soil erosion will be evaluated for each phase using the qualitative descriptors listed in Table 1. Areas within each reclaimed phase will be assigned one of the listed descriptors. Erosion and sediment control monitoring will be completed at the same time and frequency that the vegetation monitoring is done. The results will be used to aid in identifying areas of potential failures and to require the use of remedial measures before problem areas cause widespread failures that could affect water quality.

Any area larger than 400 square feet within the reclaimed phase that receives an average evaluation score of Class 2 or higher, and that persists for more than two consecutive years will be investigated. The investigator will determine the need for remedial measures. Areas receiving an average score of Class 3 or higher will receive treatment to correct the problem as described in the discussion on remedial measures. Any observable reason for failure will be noted and the appropriate remedial measure suggested as part of the annual monitoring report.

Table 1: Qualitative Description of Soil Status (From Stoddart et. Al, 1975).

CLASS	DESCRIPTION
CLASS 1	No soil loss or erosion; topsoil layer intact, well-dispersed accumulation of litter from past year's growth plus smaller amounts of older litter.
CLASS 2	Soil movement slight and difficult to recognize; small deposits of soil in form of fans or cones at end of small gullies or fills, or as accumulations back of plant crowns or behind litter, litter not well dispersed or no accumulation from past year's growth obvious.
CLASS 3	Soil movement or loss more noticeable; topsoil loss evident, with some plants on pedestals or in hummocks; rill marks evident, poorly dispersed litter and bare spots not protected by litter.
CLASS 4	Soil movement and loss readily recognizable; topsoil remnants with vertical sides and exposed plant roots, roots frequently exposed, litter in relatively small amounts and washed into erosion protected patches.
CLASS 5	Advanced erosion; active gullies, steep sidewalls on active gullies; well-developed erosion pavement on gravelly soils, litter mostly washed away.

The sedimentation basin will be inspected following the season's first major storm event, defined as more than 0.5 inch of rain falling within a 24-hour period, or at a minimum of annually. The basin will be cleaned out as needed to maintain a minimum storage capacity discussed in Section 3.3.5.

Maintenance and Monitoring

All erosion and sediment control structures will be maintained and monitored annually for as long as operations and reclamation continues. This shall be done to ensure that the failures of one or more structures do not apply additional and unplanned stress on other structures. If infilling or failure of a structure occurs, steps to repair the original structure will be taken. Infill structures shall be cleaned out without causing damage.

Death Valley National Park and Caltrans personnel hold inter-agency meetings twice annually. This forum will be used for both agencies to update each other on Towne Pass Materials Site 218 and to discuss issues and concerns.

Public Safety

The configuration of the disturbed lands will be the creation of a pit no greater than 50-feet deep with 3:1 (H: V) side slopes will not pose a hazard to the public. Hazardous materials associated with operations and processing will be stored properly on site; and prior to reclamation, will be disposed of properly off-site. In addition, the locked gate at the access point from SR 190 that will be established during the initial reclamation stage will be maintained until final site reclamation. During final reclamation, the gate will be replaced with boulders to reduce the visual impacts.

Visual

All rock structures that may be visible from SR 190, specifically the grade control structures, will be of a color that blends with the surrounding substrate. This can be accomplished by either using rock of a yellowish-gray to light brown color or by using a rock staining compound to achieve a similar color.

All rock structures visible from SR 190 will be of a similar color as the surrounding substrate on MS #218. If the emplaced rock contrasts with surroundings, then a rock staining compound will be used to achieve the desired color.

C. SUMMARIES/COSTS

The following tables summarize the extent to which the proposed alternative and the no-action alternative meet the purpose and need of this project, and the extent to which resource issues will be impacted by each of the two alternatives.

Table 2: Methods Each Alternative Uses to Ensure Each Objective Is Met

Purpose	Alternative 1: No Action	Alternative 2: Proposed Action
Provide the materials necessary to maintain Highway 190 in a manner that is cost-effective	Under this alternative, materials will be trucked in from surrounding communities. Round trips between these locations and the material site range from 100 to 224 miles (for Keeler and Shoshone, California, respectively). Assuming 6 miles per gallon of diesel gas at current prices (\$2.50 per gallon), a single load of gravel costs \$175.00. Assuming that this gravel was driven at a reasonable speed (60 mph) by a single driver earning \$29.00 per hour, the drive itself costs anywhere from \$300-\$350. With the total cost ranging from \$475-\$525 per load.	The Towne Pass Materials Site is located adjacent to the section of SR 190 that is in need of maintenance. Because the materials will not need to be transported from great distances, the costs of operations will be substantially reduced.
Ensure that materials used for road repair along Towne Pass will be of a native variety with locally derived endemic organic and inorganic constituents	Under this alternative, materials used for road repair along Towne Pass will not be locally derived and may contain organic and inorganic constituents that are not native to the Park. This could cause the introduction of non-native plant species to the Park	The use of locally derived materials will ensure that all organic and inorganic constituents will be endemic to the Park.

Table 3: Summary Comparison of Impacts

Impact Topic	No Action Alternative	Proposed Action
Geology	No action would be taken under this alternative, therefore, there would be no further impacts to geologic resources.	There would be moderate, long-term, localized adverse impacts to geologic resources under the proposed action.
Hydrology (Water Quality)	No action would be taken under this alternative; therefore, there would be no impact to water quality and no further impacts to the hydrology of the project area.	Under the proposed action, there would be minor, long-term, adverse impacts on the existing drainage patterns and negligible, short-term adverse impacts to water quality in the project area.
Soils	No action would be taken under this alternative. The failure to reclaim the existing materials site represents a long-term, moderate adverse impact localized to the project area.	For the duration of the project, there will be long-term, moderate, adverse impacts on soils in the project area. Reclamation will mitigate these impacts to negligible following the extraction phase. All impacts will be localized to the project area.
Vegetation	No action would be taken under this alternative. The failure to address Russian thistle present at the project site is a negligible to minor, site-specific, long-term adverse impact. The potential for other non-native species to be introduced to the park through the use of gravels imported from outside sources is a potential minor, long-term adverse impact.	For the duration of the project, there will be minor but long-term adverse impacts in the project area. Reclamation will mitigate these impacts to negligible following the extraction phase. The use of park-derived materials for road maintenance will likely be a long-term, beneficial impact along the Highway 190 road corridor because of the reduced chance that an invasive plant species will be introduced.
Wildlife and Wildlife Habitat	No action would be taken under this alternative; therefore there would be no impacts to wildlife or wildlife habitat.	For the duration of the project, there is the potential for moderate, long-term, adverse impacts to wildlife and wildlife habitat in the project area.
Threatened and Endangered Species	No action would be taken under this alternative. Further, no threatened or endangered species are present in the project area. Therefore, there would be no impacts to threatened and endangered species.	No threatened or endangered species are present in the project area. Therefore there would be no impacts on threatened and endangered species under the proposed action.
Cultural Resources	No action would be taken under this alternative. Further, no cultural resources eligible to the National Register of Historic Places would be impacted.	No resources eligible to or listed on the National Register of Historic Places were found in the project area. Mitigation measures are in the even that such resources are encountered during the course of the project. Therefore, there would be no impacts on cultural resources under the proposed action.
Visitor Experience	No action would be taken under this alternative. The presence of the pit is a long-term, negligible to minor adverse impact. Potential increases in traffic volume related to the import of gravel to the area would be short-term, minor, and temporary adverse impacts.	The presence of the pit will be a long-term, localized, negligible adverse impact. Traffic increases due to activity in the project area will be short-term, minor, and temporary adverse impacts.

III. AFFECTED ENVIRONMENT

Detailed information on resources in DEVA may be found in the General Management Plan (NPS 2002). A summary of the resources associated with this project are as follows.

A. LOCATION AND GENERAL DESCRIPTION

Death Valley National Park is the largest national park unit in the contiguous 48 states. The majority of park lands are located in the California counties of Inyo and San Bernardino, but a small portion of the park is located in the Nevada counties of Nye and Esmerelda. California

State Route (SR) 190 crosses DEVA east to west and Highway 95 parallels the park north to south on the eastern boundary (NPS 2002).

DEVA encompasses 3,396,192 acres in the Mojave Desert, a zone of overlap between the Great Basin Desert to the north and the Sonoran Desert to the south. The park includes all of Death Valley, a 156-mile long north/south trending trough that formed between two major block-faulted mountain ranges: the Amargosa Range on the east and the Panamint Range on the west. Telescope Peak, the highest peak in the park and in the Panamint Range, rises 11,049 feet above sea level and lies only 15 miles from the lowest point in the Western Hemisphere in the Badwater Basin salt pan, 282 feet below sea level (NPS 2002).

Most of the landscape at DEVA is open, with broad vistas of relatively undeveloped land. Early miners and ranchers developed roads that today offer visitors a chance to drive to many remote locations where informal camping has traditionally occurred. The many roadless areas of the park offer hikers the chance to explore. There are many cultural sites such as abandoned mining districts that attract visitors. The mountain ranges offer a contrast to the hot, dry valleys of the park, attracting people in the summers with cooler temperatures and forested areas. Exposed geology and unique wildlife are other resources that attract people to DEVA. The land has many extremes and contrasts that people come to experience. Most visitors come to the desert simply to see the outstanding scenery of this diverse landscape (NPS 2002).

GEOLOGY

The materials site is located within the Panamint Range, approximately 1 mile south of Towne Pass. The Panamint Range is north-northwest trending mountain range that is part of the Basin and Range Geomorphic Province. The Panamint Range is the structural high, or horst, that separates Panamint Valley, to the west, from Death Valley, to the east (Figure 1).

A reconnaissance geologic assessment of the site was performed on October 2, 1992. According to Hall (1971), MS #218 is located on the medial portion of recent alluvial fans formed by small drainages feeding into the Towne Pass depression (Figure 5). It can be deduced from the geologic map that the primary source rocks for the alluvium are the reworked sediment from the older fanglomerate deposits, and dolomite and limestone from the Paleozoic-age Ely Springs and Hidden Valley formations. This was also illustrated by the gravel clasts seen at the site, which were predominantly dark- to light-gray dolomite/limestone in composition.

In addition to the lithology of the area, the geologic map and cross section also shows the near vertical faults that line and form the depression of Towne Pass (Figure 5). According to Hall (1971), the Towne Pass fault, approximately ¼ mile east of the site, appears to be a normal fault with at least 7,800 feet of vertical separation, west side down.

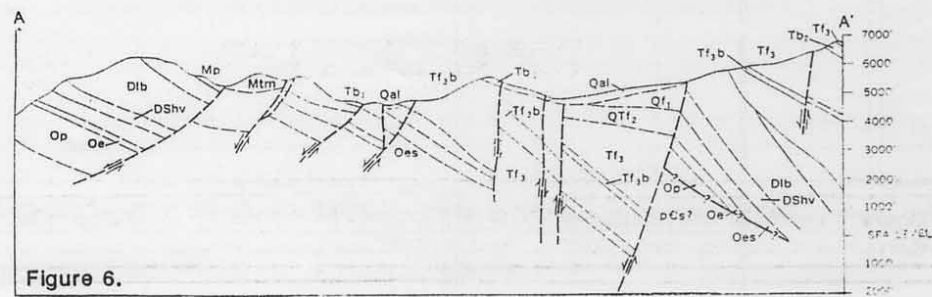
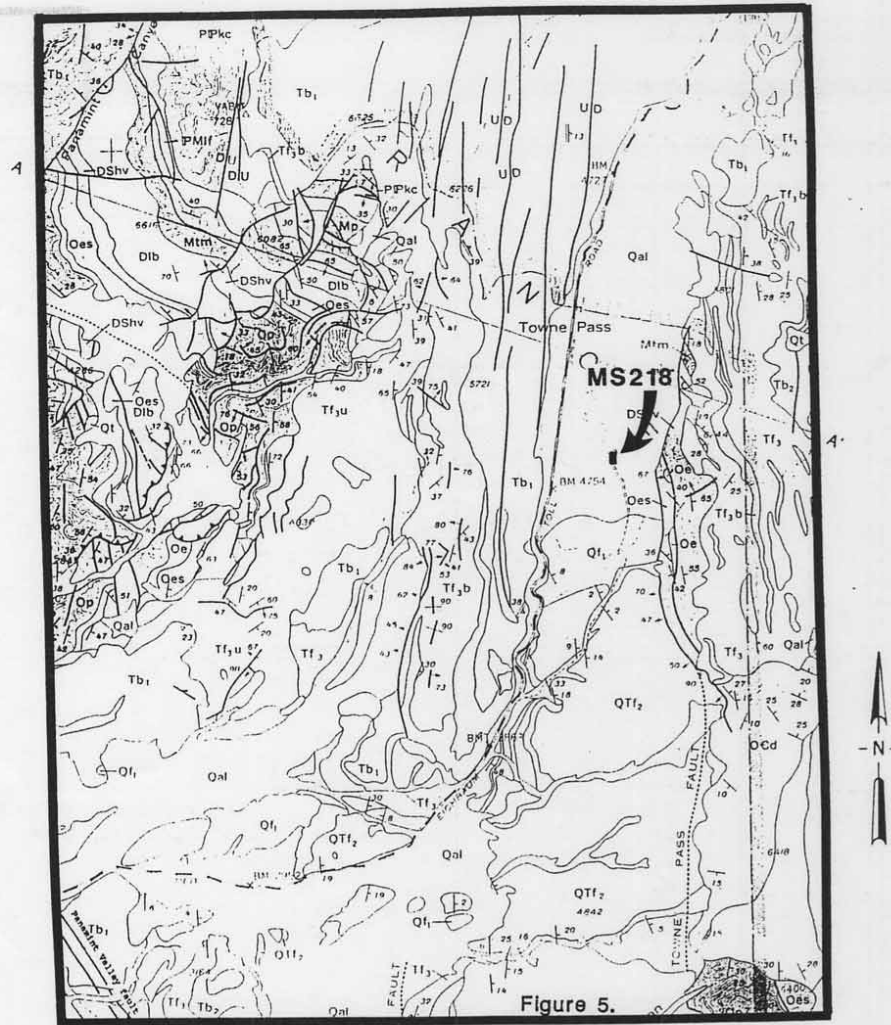


Figure 6 is an east-west trending geologic cross-section across Towne Pass approximately 1/2 mile north of the material site. Because of the site's proximity to the cross section, this section closely represents the subsurface geology beneath the site, approximately 300 feet. Of particular

interest is the thickness of the alluvial sediments beneath the site, estimated by the author to be approximately 300 feet.

Existing native and man-made slopes at the site are generally moderate to shallow ranging from 1° to 33° angles (the later of which is on a small slope). The angle of repose of the loose stockpile material on site is approximately 32°. For this reason, these slopes will likely remain stable in the interim.

Two active faults occur in the vicinity of the project site, Towne Pass and Panamint Valley faults. The nearest fault is the Towne Pass fault located approximately ¼-mile to the east of the site. (Bryant 1989, 1993).

HYDROLOGY (WATER QUALITY)

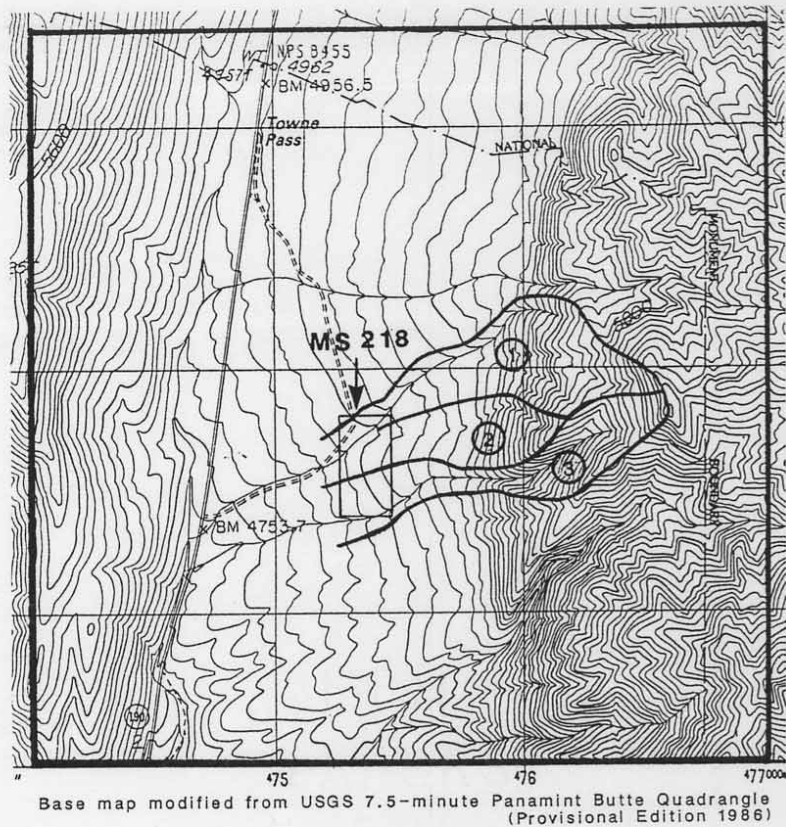
The surface and groundwater regimes at the site are directly tied to the existing topography, geology, and climate of the region. Surface waters drain from the mountains to the east of Towne Pass onto the alluvium within the pass. Precipitation and incipient mountain runoff in the region are restricted to storm events that occur typically in the winter months.

Ground water frequently follows the flow direction of the surface waters. The predominant source for ground water in the region is infiltration of surface water along the mountain front. Ground-water sources of less significance occur from recharge along influent, or "losing", stream drainages and from infiltration of precipitation.

Figure 7 depicts the watersheds that feed the three drainages that cross the material site. All three watersheds drain from the bedrock area in the mountains approximately 1/4 mile east of the site. The watershed for the drainage that enters the site along the north side of the pit designated as Drainage 1 in Figure 7, has an area of approximately 73 acres. The watershed for the drainage that enters the northeast corner of the material site, Drainage 2, has an area of approximately 39 acres. The watershed for the drainage that enters the site from the east, Drainage 3, has an area of approximately 52 acres. All three drainages typically flow during times of intermittent, intense precipitation. Peak flows for Drainages 1, 2, and 3 are 47 cubic feet per second (cfs), 25 cfs, and 34 cfs, respectively; the total peak flow through the site will be approximately 106 cfs.

The dominant ground-water source in the area of the materials site is the valley fill/alluvial deposits underlying the site. Although there are no direct sources of information on the hydrogeology of the Towne Pass area, certain assumptions can be made concerning the depth and quality of ground water beneath the site based on regional studies.

As part of a study to locate potential areas for the disposal of high-level radioactive waste, researchers determined that ground-water depths will typically exceed 500 feet in areas of consolidated rock beneath mountain ranges in the Basin and Range Province desert region (Sargent and Bedinger 1985). Although much of the Towne Pass area and the material site are underlain by alluvial sediment, this area is classified as a mountainous region underlain by consolidated rock. For this reason, Sargent and Bedinger (1985) have mapped ground water in the area at a depth of greater than 500 feet.



Because the site is in close proximity to dolomite-limestone bedrock, Thompson et al. (1984) has classified ground water chemistry in the Towne Pass region as calcium, magnesium, and bicarbonate type of water. Thompson et al. (1984) have also estimated that the dissolved-solids

concentration in the ground water is less than 500 milligram per liter, indicating that natural ground water may be of relatively good quality. The land in the Towne Pass region is controlled by DEVA for the U. S. Department of the Interior. Except for the existing pit at the material site, the land in the Towne Pass area is presently undisturbed and undeveloped. Surface and ground waters are not presently being utilized.

SOILS

Alluvial soils are controlled by the parent material in the surrounding mountains, by the age of the various depositional units of each fan, and by the grain-size distribution of the parent material deposited on the fan.

There have been no detailed soil surveys completed in the Towne Pass Region. This site is located on an alluvial fan overlooking the Towne Pass vicinity. Based on the soil analysis information gathered for this project, the soils on the site appear moderately susceptible to wind, sheet-flow, and rill erosion.

Well-developed soil horizons are not present at the site; therefore, distinct soil horizons will not need to be reestablished in order to reestablish the native vegetation. The site consists of alluvial deposits with coarse textured soils that have a low water-holding capacity. The native soil surface contains a large amount of gravel and cobble size fragment, which will aid with erosion control. Re-vegetation of these soils will need to be limited to native species that are adapted to these droughty conditions (Figure 8).

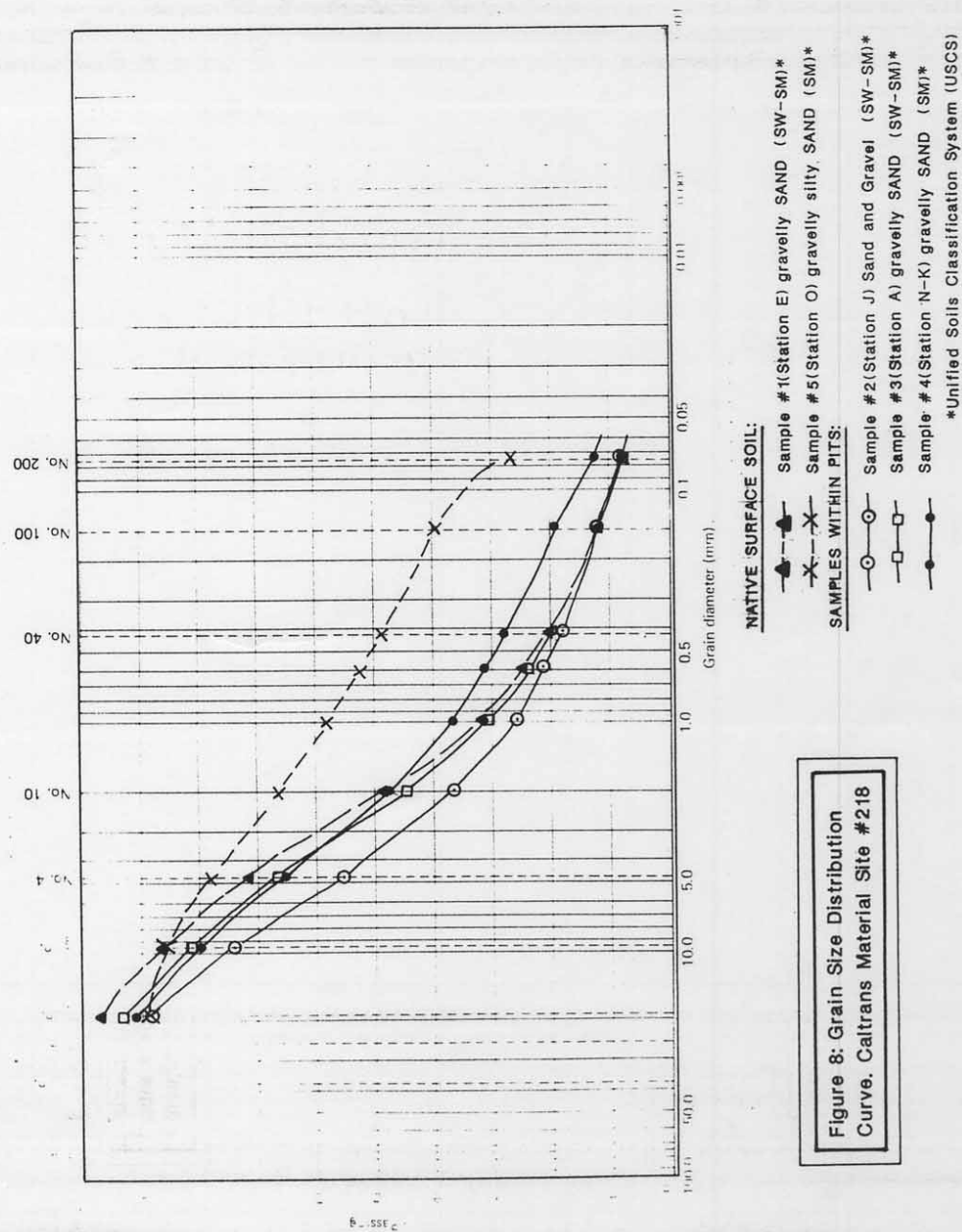
VEGETATION

The site was surveyed on May 5, 1992. Standard methodologies (Mueller-Dombois and Ellenburg 1974, Nelson 1988) were used to survey the site for special plant species, to document existing vegetation, and to determine appropriate re-vegetation strategies. The site is located in the northern portion of the Hot Desert Floristic Province (Barbour and Major 1988). Taxonomy generally follows Munz (1959, 1968) and common names are from Jaeger (1969). The extraction area occurs within the Mojave Mixed Woody Scrub vegetative community type as defined by Holland (1986). Previously disturbed areas are devoid of vegetation or support a disturbed aspect of this mixed scrub community. In undisturbed locations, coarse soil fragments dominate the areas between the shrubs. The aerial extent of the undisturbed Mojave Mixed Woody Scrub and disturbed aspect of the same vegetation type on the site is as follows:

Undisturbed Mixed Mojave Woody Scrub	13 acres
Disturbed Mixed Mojave Woody Scrub	7 acres

The shrub layer of this complex and diverse community was dominated by Fremont Indigo-bush. The shrub layer has approximately 60-70 percent cover. Areas that have been previously disturbed supports a less diverse mixture of the same species.

The most abundant species on the disturbed areas include shadscale, spiny hop-sage, Russian thistle, evening primrose, desert mallow, Fremont phacelia, deflexed buckwheat, and desert needlegrass. The California Diversity DataBase (1992) does not list any unique or critical plant communities for the Panamint Butte, 7-1/2' Quadrangle, and none were observed on the site during the survey. According to the Natural Diversity DataBase, three sensitive species are



known to occur in the vicinity:

1. Gilman's Cymopterus (*Cymopterus gilmanii*)
2. Rusby's desert mallow (*Sphaeralcea rusbyi* ssp. *eremicola*)
3. Black milk vetch (*Astragalus funereus*)

Although generalized habitat for these above species exist on the site, none was observed during the site visit.

A limited population of Russian thistle exists on the site in disturbed locations. Russian thistle has the potential to be a very competitive invader on disturbed lands.

Reestablishment of vegetation on this site will be somewhat limited due to the droughty nature of the soil. Unlike desert vegetation at lower elevations in this region, this site supports a moderately dense (60-70 percent coverage) stand of vegetation, thereby providing some erosion control. The coarse fragments (gravel) present on the surface of this alluvial fan also provide protection from wind and water erosion. Therefore, the goal of re-vegetation of this site will be to re-establish components of the native plant community, thereby, providing habitat values and integrating the site visually with the surrounding areas. Erosion control can be accomplished using the native coarse-grained soils and salvaged vegetative debris (the combination which is termed "duff").

WILDLIFE AND WILDLIFE HABITAT

The site was surveyed on May 5, 1992, during heavy thundershowers, and again on February 4, 1993. No wildlife was observed at the time of the surveys. However, numerous burrows characteristic of kangaroo rats were observed, along with larger burrows and scratch digging characteristic of carnivores. This site contains a native desert scrub plant community. The site is surrounded on all sides by undisturbed land with similar native vegetation; the only disturbances to the area are the site itself, the access road, and SR 190. The site supports a diverse assemblage of arthropods, reptiles, birds, and mammals typical of mountainous portions of the Mojave Desert. Animals associated with or requiring large amounts of water (e.g. fish and amphibians) are notably scarce in this and other desert regions (Zeiner et al. 1988). The California Natural Diversity Data Base has no records of unique habitats for the USGS Panamint Butte Quadrangle (CNDDDB 1992). In addition, no unique or critical habitats were identified on the site during the site survey. Two special animal species are known from the Panamint Butte (CNDDDB 1991,1992):

1. Prairie falcon (*Falco mexicanus*)
2. Nelson's bighorn sheep (*Ovis canadensis nelsoni*)

The materials site does not support specific habitat for these species. This site contains no known critical or key habitat for mule deer. Likewise, is not known to contain critical habitat for any game species (USDI, 1993). However, Nelson's bighorn sheep are reported to live in the vicinity of Towne Pass.

AIR QUALITY

The closest established weather station is located at the Wildrose Ranger Station (elevation 4,100 feet), approximately 12 miles southeast of the material site.

The mean annual precipitation at the Wildrose Ranger Station weather facility over a 24-year period, 1969-1991 is 6.72 inches per year. The average precipitation for the months of January

and July over the same period is 1.02 inches .32 inches, respectively (Western Region Climate Center 1993). The mean snowfall at the Wildrose Ranger Station during the same period is 3.1 inches. Although snowfall is negligible in a typical year, the greatest monthly snowfall was 17.0 inches for January 1990 (Western Region Climate Center 1993).

The monthly mean maximum/minimum temperatures at the Wildrose Ranger Stations for the months of January and July are 50.6/29.4 and 94.9/63.8 degrees Fahrenheit, respectively. The mean numbers of days per year with temperatures over 90 degrees Fahrenheit and below 32 degrees Fahrenheit are 76 and 1, respectively (Western Region Climate Center, 1993).

Winds are generally strong, blowing alternately from the north and south through Towne Pass depending on the time of day.

Air quality in the Panamint Range is typically good, however strong dust storms occur in the Panamint Valley due to the exposure of erodible sediments. Such storms might occasionally blow dust through Towne Pass.

CULTURAL RESOURCES

The area where the Material Site is located is within the territory traditionally attributed to the Owens Valley Paiute, Kawaiisu, and Western Shoshone. Currently, alluvial fans and dry lake shorelines dominated by low, open sagebrush and creosote scrub vegetation communities characterize the present area.

In July of 1992, 40 acres of MS #218 and surrounding land were surveyed for archeological resources. Prior to field surveys, a literature search was conducted. The National Register of Historic Places (1979 and updates through 1991), the California Inventory of Historic Resources (1976), California Historical Landmarks (1990), Archaeological Site Records, and the Eastern Information Center, University of California, Riverside (May, 1992) were consulted for previous site records. The record search indicated that Material Site 218 was an area of low site density and no artifacts were previously recorded. During the field survey the material site was inspected using a series of parallel compass-line transects 15-20 meters apart in undisturbed areas. Severely disturbed areas such as borrow pits and mixing tables were inspected using transects spaced 40-50 meters apart. In the case of Material Site 218, borrow pits severely disturbed the site, in addition to having a mixing table on site. Additional impacts to the site included the access road.

Once the cultural study was conducted it was determined that only lithic isolates were present, within the study area. However, if previously unknown cultural resources are encountered during the course of extracting or processing materials at the material site, Caltrans policy requires that work be halted until the discoveries are evaluated by a qualified cultural resources professional and the provisions of 36 CFR 800 have been met.

LAND USE

Lands within DEVA have been classified into multiple-use classes based on sensitivity of resources and land-use for each area. The four multiple-use classes are used to designate different levels of permitted land-use and different kinds of resource management within an area. In addition county planning agencies classify lands according to county land-use plans.

Inyo County classifies the site as open space and National Park. There is no grazing allotment on or near the site, there are no towns, houses, or other structures in the vicinity of the site.

IV. ENVIRONMENTAL CONSEQUENCES

This section describes the potential environmental consequences associated with the no-action and the proposed alternatives. The methodologies and assumptions for assessing environmental consequences are discussed, including consideration of context, intensity, and duration of impacts; cumulative impacts; and measures to mitigate impacts. As mandated by National Park Service policy, resource impairment is explained and then assessed for each alternative. Subsequent parts of this section are organized by impact topic, first for the no-action alternative, and then for the proposed alternative.

A. METHODOLOGY

The National Environmental Policy Act (NEPA) requires that environmental documents disclose the environmental impacts of proposed federal action, reasonable alternatives to that action, and environmental effects that cannot be avoided should the proposed action be implemented. This section analyzes the environmental impacts of project alternatives on geology, water quality, soils, vegetation, wildlife and wildlife habitat, threatened and endangered species, cultural resources, and visitor experience. These analyses provide the basis for comparing the effects of the alternatives. NEPA requires consideration of impacts including the context, intensity, duration, type, and measures to mitigate impacts.

Potential impacts are described in terms of type, context, duration, and intensity.

Type of Impact

- Adverse impacts are those that change the affected environment in a manner tending away from the natural range of variability.
- Beneficial impacts are those that change the affected environment toward the natural range of variability.
- Direct impacts include such impacts as animal and plant mortality, damage to cultural resources, or creation of smoke, that occur at the time and place of the action.
- Indirect impacts are those that occur at a different time and/or place than the action. Indirect impacts include changes such as species composition, structure of the vegetation, or range of wildlife. Indirect impacts could occur off-unit such as erosion-related impacts, or general economic conditions tied to park activities.
- Cumulative impacts are those impacts on the environment that result from the incremental (i.e., additive) impact of direct and indirect impacts when added to other past, present, and reasonably foreseeable future actions regardless of who undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Context of Impact

Impacts are considered at their local, regional, or national context as appropriate.

Duration of Impact

Duration is a measure of the time period over which the effects of an impact persist. The duration of impacts evaluated in this EA may be one of the following:

- Short term impacts are those that can be reversed relatively quickly. Short term impacts

- typically occur only during construction and last less than one year; or
- Long term impacts are those that are reversed more slowly. Long term impacts last one year or longer.

Intensity of Impact

Intensity is a measure of the severity of an impact. The intensity of an impact may be:

- Negligible, when the impact is localized and not measurable or at the lowest level of detection;
- Minor, when the impact is localized and slight but detectable;
- Moderate, when the impact is readily apparent and appreciable; or
- Major, when the impact is severe and highly noticeable.

Because definitions of intensity (negligible, minor, moderate, or major) vary by impact topic, intensity definitions are provided separately for each impact topic analyzed in this environmental assessment/assessment of effect.

B. IMPACT INTENSITY THRESHOLDS

Geology

Information on geology was compiled from two geologic surveys of the project area, one performed by the U.S. Geological Survey in 1971 (Hall 1971) and one performed in 1992 as a reconnaissance survey specific to this project. The thresholds of change for the intensity of an impact to geology are defined as follows:

- Negligible:* Impacts to geologic features would not be detectable based on standard scientific methodologies.
- Minor:* Impacts to geologic features would be detectable but slight. Monitoring would likely detect changes to the features, and the loss of associated contextual information would be minimal.
- Moderate:* Impacts to geologic features would be readily apparent, but the area of disturbance would be localized. Monitoring would identify most affected geologic features, but some features and/or associated contextual information would be lost.
- Major:* Impacts would result in substantial or widespread loss or alteration of geologic features. Restoration of the features may be possible over the long term.

Hydrology (Water Quality)

Information on the groundwater depth and quality come from studies conducted in the region during the mid-80s (Thompson et al. 1984; Sargent and Butler 1985). The surface topography and flow systems were surveyed for this project. The threshold of change for the intensity of an impact to the hydrology are defined as follows:

- Negligible:* Impacts are chemical, physical, or biological effects that would not be detectable,

would be well below water quality standards or criteria, and would be within historical or desired water quality conditions.

- Minor:* Impacts (chemical, physical, or biological effects) would be detectable but would be well below water quality standards or criteria and within historical or desired water quality conditions.
- Moderate:* Impacts (chemical, physical, or biological effects) would be detectable but would be at or below water quality standards or criteria; however, historical baseline or desired water quality conditions would be altered on a short-term basis.
- Major:* Impacts (chemical, physical, or biological effects) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would be slightly or singularly exceeded on a short-term basis.

Soils

Information on soils in the project area was acquired through a project-specific assessment of the soils present at this project location. The threshold of change for the intensity of an impact to the soil is defined as follows:

- Negligible:* Soils would not be affected or the effects to soils would be below or at the lower levels of detection. Any effects to soils would be slight.
- Minor:* The effects to soils would be detectable. Effects to soil area, including soil disturbance and erosion would be small and localized. Mitigation may be needed to offset adverse effects and would be relatively simple to implement and likely be successful.
- Moderate:* The effect on soils would be readily apparent and result in a change to the soil character over a relatively wide area, erosion of soils over a wide area or soil disturbance over a wide area. Mitigation measures would be necessary to offset effects and likely to be successful.
- Major:* The effect on soils would be readily apparent and substantially change the character of the soils over a large area, substantial erosion would occur resulting in a large amount of soil loss. Mitigation measures to offset adverse effects would be needed, extensive, and their success could not be guaranteed.

Vegetation

Information on the vegetation in the project area was obtained through a project-specific vegetation survey undertaken in 1992. Standard methodologies (Mueller-Dombois and Ellenburg 1974, Nelson 1988) were used to survey the site for special plant species, to document existing vegetation, and to determine appropriate re-vegetation strategies. The threshold of change for the intensity of an impact to the vegetation is defined as follows:

- Negligible:* No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native

species populations. The effects would be on a small scale.

- Minor:* The alternative would affect some individual native plants and would also affect a relatively limited portion of that species' population. Mitigation to offset adverse effects could be required and would be effective.
- Moderate:* The alternative would affect some individual native plants and would also affect a sizable segment of the species population over a relatively large area. Mitigation to offset adverse effects would be extensive, but would likely be successful.
- Major:* The alternative would have a considerable effect on native plant populations, and affect a relatively large area in and out of the park. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

Wildlife and Wildlife Habitat

Information on the wildlife present at the project location was obtained during two surveys, the first occurred in on May 5, 1992, during heavy thundershowers and the second occurred on February 4, 1993. Other information was obtained from the California Natural Diversity Data Base has no records of unique habitats for the USGS Panamint Butte Quadrangle (CNDDDB 1992). The threshold of change for the intensity of an impact to wildlife and wildlife habitat is defined as follows:

- Negligible:* There would be no observable or measurable impacts to native species, their habitats, or the natural processes sustaining them. Impacts would be of short duration and well within natural fluctuations.
- Minor:* Impacts would be detectable, but they would not be expected to be outside of the natural range of variability and would not be expected to have any long-term effects on native species, their habitats, or the natural processes sustaining them.

Population numbers, population structure, genetic variability, and other demographic factors for species might have small, short-term changes, but long-term characteristics would remain stable and viable. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors effecting population levels.

Key ecosystem processes might have short-term disruptions that would be within natural variation. Sufficient habitat would remain functional to maintain viability of all species. Impacts would be outside critical reproduction periods for sensitive native species.

- Moderate:* Breeding animals of concern are present; animals are present during particularly vulnerable life-stages, such as migration or juvenile stages; mortality or interference with activities necessary for survival can be expected on an occasional basis, but is not expected to threaten the continued existence of the species in the park unit.

Impacts on native species, their habitats, or the natural processes sustaining them

would be detectable, and they could be outside of the natural range of variability for short periods of time. Population numbers, population structure, genetic variability, and other demographic factors for species might have short-term changes, but would be expected to rebound to pre-impact numbers and to remain stable and viable in the long term. Frequent responses to disturbance by some individuals could be expected, with some negative impacts to feeding, reproduction, or other factors affecting short-term population levels.

Key ecosystem processes might have short-term disruptions that would be outside of natural variation (but would soon return to natural conditions). Sufficient habitat would remain functional to maintain viability of all native species. Some impacts might occur during critical periods of reproduction or in key habitat for sensitive native species.

Major: Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability for long periods of time or be permanent.

Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Breeding colonies of native species might relocate to other portions of the park.

Key ecosystem processes might be disrupted in the long term or permanently. Loss of habitat might affect the viability of at least some native species.

Threatened and Endangered Species

The Endangered Species Act of 1973 (16USC 1531 et seq.), as amended, mandates that all federal agencies consider the potential effects of their actions on species listed as threatened or endangered. If the National Park Service determines that an action may adversely affect a federally listed species, consultation with the U.S. Fish and Wildlife Service is required to ensure that the action would not jeopardize the species' continued existence or result in the destruction or adverse modification of critical habitat. NPS Management Policies 2006 states that potential effects of agency actions would also be considered for state or locally listed species.

It is the policy of the National Park Service to manage critical habitat of such species and to perpetuate the natural distribution and abundance of these species, as well as the ecosystems upon which they depend. The California Natural Diversity Data Base has no records of unique habitats for the USGS Panamint Butte Quadrangle (CNDDDB 1992). In addition, no unique or critical habitats were identified on the site during site survey. The thresholds of change for the intensity of an impact are defined as follows:

Negligible: The action could result in a change to a population or individuals of a species or designated critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence and would be well within natural variability. This impact intensity equates to a U.S. Fish and Wildlife Service "may affect, not likely to adversely affect" determination.

- Minor:* The action could result in a change to a population or individuals of a species or designated critical habitat. The change would be measurable, but small and localized and of little consequence. Mitigation measures, if needed to offset the adverse effects, would be simple and successful. This impact intensity equates to a U.S. Fish and Wildlife Service “may affect, not likely to adversely affect” determination.
- Moderate:* Impacts on special-status species, their habitats, or the natural processes sustaining them would be detectable and occur over a large area. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful. This impact intensity equates to a U.S. Fish and Wildlife Service “may affect, likely to adversely affect” determination.
- Major:* The action would result in a noticeable effect to viability of a population or individuals of a species or resource or designated critical habitat. Impacts on a special-status species, critical habitat, or the natural processes sustaining them would be detectable, both in and out of the park. Loss of habitat might affect the viability of at least some special-status species. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed. This impact intensity equates to a U.S. Fish and Wildlife Service “may affect, likely to jeopardize the continued existence of a species or adversely modify critical habitat for a species” determination.

Cultural Resources

Certain important research questions about human history can only be answered by the actual physical material of cultural resources. Archeological resources have the potential to answer, in whole or in part, such research questions. In order for an archeological resource to be eligible for the National Register of Historic Places it must meet one or more of the following criteria of significance:

- A. associated with events that have made a significant contribution to the broad patterns of our history;
- B. associated with the lives of persons significant in our past;
- C. embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction;
- D. have yielded, or may be likely to yield, information important in prehistory or history.

In addition, the archeological resource must possess integrity of location, design, setting, materials, workmanship, feeling, association (National Register Bulletin, Guidelines for Evaluating and Registering Archeological Properties). For purposes of analyzing impacts to archeological resources either listed in or eligible to be listed in the National Register, the thresholds of change for intensity of an impact are defined below:

- Negligible:* Impact is at the lowest levels of detection - barely measurable with no perceptible consequences, either adverse or beneficial, to archeological resources. For purposes of §106, the determination of effect would be no adverse effect.

- Minor:* Adverse: disturbance of a site(s) results in little, if any, loss of significance or integrity and the National Register eligibility of the site(s) is unaffected. For purposes of Section 106, the determination of effect would be no adverse effect.
Beneficial: maintenance preservation of a site(s). For purposes of §106, the determination of effect would be no adverse effect.
- Moderate:* Adverse: disturbance of a site(s) does not diminish the significance or integrity of the site(s) to the extent that its National Register eligibility is jeopardized. For purposes of Section 106, the determination of effect would be adverse effect.
- Beneficial: stabilization of the site(s). For purposes of §106, the determination of effect would be no adverse effect
- Major:* Adverse: disturbance of a site(s) diminishes the significance and integrity of the site(s) to the extent that it is no longer eligible to be listed in the National Register. For purposes of Section 106, the determination of effect would be adverse effect.
- Beneficial: active intervention to preserve the site. For purposes of §106, the determination of effect would be no adverse effect.

Visitor Experience

National Park Service Management Policies 2006 state that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the National Park Service is committed to providing appropriate, high-quality opportunities for people to enjoy the parks.

Part of the purpose of DEVA is to offer opportunities for recreation, education, inspiration, and enjoyment. Consequently, one of the park's management goals is to ensure that visitors safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of park facilities, services, and appropriate recreational opportunities.

The potential for change in visitor use and experience proposed by the alternatives was evaluated by identifying projected increases or decreases in use of the project area and other visitor uses and determining how these projected changes would affect the desired visitor experience, and to what degree and for how long. The thresholds of change for the intensity of an impact to visitor experience are defined as follows:

- Negligible:* Visitors would not be affected or changes in visitor use and/or experience would be below or at the level of detection. Any effects would be short-term. The visitor would not likely be aware of the effects associated with the alternative.
- Minor:* Changes in visitor use and/or experience would be detectable, although the changes would be slight and likely short-term. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.
- Moderate:* Changes in visitor use and/or experience would be readily apparent and likely long-term. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.

Major: Changes in visitor use and/or experience would be readily apparent and have important long-term consequences. The visitor would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.

IMPAIRMENT

National Park Service's *Management Policies 2006* require analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values.

Although Congress has given the National Park Service the management discretion to allow certain impacts within park, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values. An impact to any park resource or value may constitute impairment, but an impact would be more likely to constitute impairment to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impairment may not result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessionaires, contractors, and others operating in the park. A determination on impairment is made in the Environmental Consequences section for natural and cultural resource topics.

CUMULATIVE IMPACT SCENARIO

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969 (42 USC 4321 et seq.), require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for both the no-action and preferred alternatives.

Cumulative impacts were determined by combining the impacts of the preferred alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to

identify other ongoing or reasonably foreseeable future projects at DEVA and, if applicable, the surrounding region.

PAST ACTIONS:

The following past actions could contribute to cumulative effects:

- Previous use of MS #218.

The proposed action would expand the impacts of materials extraction that has already occurred at MS #218. The impacts of this expansion were analyzed as part of this EA and are enumerated in the Environmental Consequences section, below.

CURRENT AND FUTURE ACTIONS:

Current actions and those projected for the future could also contribute to cumulative effects. These include:

- Construction of a day-use parking lot at the Stovepipe Wells Dunes;
- Rehabilitation of Bonnie Claire and Ubehebe Crater Roads;
- Furnace Creek Water System Update;
- Mud Canyon / Daylight Pass Road Rehabilitation;
- Relocated Grapevine Housing Project (Construct Seasonal Housing at Cow Creek Housing Area).

It is possible that any of these projects, but particularly the road construction projects and the day-use parking lot project could, along with the proposed action, further increase the traffic on roads within the park. This is particularly true if any of these construction activities occur contemporaneously with the proposed action. At most, these impacts should be short-term, minor to moderate adverse impacts, if proposed activities co-occur.

The Park's GMP suggests that a review of the alignment of SR 190 at Stovepipe Wells be requested from Caltrans, with the intent of investigating whether this action would decrease the potential of pedestrian/vehicle accidents near the gas station. This project has not yet reached the planning stage and, for this reason, any impacts such an action would have to the human environment are unknown. For that reason, it was not included in the cumulative impact scenario.

C. ENVIRONMENTAL CONSEQUENCES – ALTERNATIVE 1: NO ACTION

GEOLOGY

No action would be taken under this alternative and, therefore, there would be no further impact to the geology of the area. There would also be no remediation of the pit that was created through past excavations.

Impairment of Park Resources and Values

Under this alternative there would be no further impacts to geologic resources and thus no impairment of DEVA resources.

HYDROLOGY (WATER QUALITY)

No action would be taken under this alternative and, therefore, there would be no impact on the water quality and no further impact on the hydrology of the area.

Impairment of Park Resources and Values

Under this alternative there would be no change from existing conditions and thus no impairment of DEVA resources.

SOILS

No action would be taken under this alternative and, therefore, there would be no future impact on the soils in this area. No actions would be taken to reclaim the soils in the areas subject to previous disturbance.

Impairment of Park Resources and Values

Under this alternative, there would be no change from existing conditions to either remove more material or reclaim areas where material were previously removed. The impacts of the failure to reclaim the existing materials extraction represent a moderate impact over seven acres. This does not rise to the level of impairment. Thus, under this alternative, there would be no impairment of DEVA resources.

VEGETATION

No action would be taken under this alternative and thus there would be no change from the existing conditions. Some Russian thistle is already present in the project area. Under the no action alternative, there are no project-area specific plans to address the presence of this invasive species. Also, under this alternative, materials from locations outside of the park will be used for road maintenance and construction along Towne Pass, increasing the potential that further non-native species will be introduced to the park environment. If this occurred, it would probably be a minor impact in the locations where invasive species take hold.

Impairment of Park Resources and Values

The unaddressed presence of Russian thistle in the project area is probably a negligible to minor impact that is localized to the project area, but does not rise to the level of impairment. The potential for future introduction of weeds to the park environment along SR 190 is probably also a minor impact that will, initially, be localized to the area of invasion. Thus, under this alternative, there would be no impairment of DEVA resources.

WILDLIFE AND WILDLIFE HABITAT

No action would be taken under this alternative and there would be no change from the existing conditions for wildlife and wildlife habitat.

Impairment of Park Resources and Values

The existing site, while not natural, does not impact wildlife or wildlife habitat. Thus, under the no-action alternative, there would be no impairment of DEVA resources.

THREATENED AND ENDANGERED SPECIES

No actions would be taken under this alternative, and no threatened or endangered species are known to be present in the project area. Thus, under the no-action alternative, there would be no impacts on threatened and endangered species.

Impairment of Park Resources and Values

The existing site, while not natural, does not impact any wildlife or wildlife habitat. Furthermore, there are no threatened and endangered species in the project area. Thus, under the no-action alternative, there would be no impairment of DEVA resources.

CULTURAL RESOURCES

Under the no action alternative, there would be no activity in the project area. Further, archeological research and survey indicated that no resources listed on or eligible to the National Register of Historic Places were located in the project area. Thus, there would be no impact on archeological resources as a result of this alternative.

Impairment of Park Resources and Values

Because there would be no impacts to archeological resources, there would be no impairment of DEVA resources under the no-action alternative.

D. ENVIRONMENTAL CONSEQUENCES – ALTERNATIVE 2: PROPOSED ACTION

GEOLOGY

The proposed action would result in the excavation of a maximum of 130,000 cubic yards of material from the project area. The current site represents the excavation of an estimated 50,000 cubic yards. Based on this, the volume of the final site would be almost three-and-a-half times larger than the current pit. These impacts would be readily apparent. Some features or contextual information would be lost. Because this loss would be confined to seven of the approximately 3,350,000 acres that comprise the Park, this loss would be likely to be minimal relative to the Park as a whole. The site created by this work would effectively be permanent, so impacts would be long-term, although they would be localized to the project area. Based on this, there would be moderate, long-term, localized impacts to geologic features under the proposed action.

Impairment of Park Resources and Values

The geologic impacts of the proposed action would be moderate, long-term, and localized, but they do not rise to the level of impairment because the land impacted is a very small fraction of the overall park area. Thus, there would be no impairment of park resources under this alternative.

HYDROLOGY (WATER QUALITY)

The proposed action would result in the redirection of flow in some drainages in the project area. Surface runoff in the project area will pond in the sediment basin and percolate into the ground. Runoff from the three drainages to the east will flow through the site, via the grade stabilization structures and the large drainage ditch and into the existing drainage to the north of the access road. Because this redirection will keep water in the drainages away from the area of activities, there should be only negligible effects on the chemical, physical, and biological properties of the water that occasionally runs in the drainages.

Fuel used in support of extraction operations will be stored on site for on-site activities in an above ground fuel tank. The tank will be situated within a Lahontan Regional Water Quality

Control Board-approved containment basin. This mitigation is likely to be successful. Overall, impacts of the proposed action on water quality are likely to be minor. Changes to the flow patterns will be permanent, but changes to water quality that result from these flow patterns will be of short duration. The effects of the impacts are likely to be localized to the immediate project area.

Impairment of Park Resources and Values

Effects to water quality will be minor, of short duration, and localized to the project area. The flow patterns in the immediate project area will be permanently altered, but these impacts of this will also be minor. These effects do not rise to the level of impairment. Based on this, there will be no impairment of park resources.

SOILS

The proposed action would result in the initial removal of six inches of topsoil in all areas from which materials will subsequently be removed. This topsoil will be stockpiled for the duration of the extraction phase. Following the cessation of extraction, it will be augmented with unusable fines recovered during materials processing and this mix will be spread over the site. At this point, mitigation plans are in place to ensure that within five years of the completion of extraction, soils in the project area have stabilized.

During the 20 years when material is extracted from this site, effects on the soils will be apparent. The removal of the topsoil during that time will represent a change in soil character in the project area. Thus, for the duration of the project, there will be moderate effects on the soils in the project area.

Following the extractions phase, reclamation procedures will be taken to ensure soil recovery. These plans mandate that reclaimed soils will not sustain impacts of intensities higher than negligible, and provide further remediation and mitigation when this standard is not adhered to. These mitigation efforts are likely to be successful. Thus, the impacts following reclamation will be negligible and localized to the project area. Reclamation is designed to take five years. This represents a long-term impact.

Impairment of Park Resources and Values

During the extraction process, there will be long-term, moderate impacts localized to the project area. Mitigation will be a long-term process, but the resulting impacts to soil will be localized and negligible. For both the extraction and reclamation phases, impacts do not rise to the level of impairment. Thus, there will be no impairment of park resources.

VEGETATION

The extraction phase of this project will result in the removal of vegetation from the project area. This will affect some individual native plants, and will affect a limited portion of the population of these plant species. Thus, this will be a minor impact localized to the project area that will last for 20 years, the duration of extraction.

Following the extractions phase, reclamation procedures will be taken to ensure plant recovery. These plans mandate that vegetation in the project area will be returned to a condition consistent with current vegetation levels. The revegetation plan also addresses the presence of Russian thistle in the project area and makes plans for its removal if it is impacting the germination or

growth of native species. Thus, following reclamation, the impacts will be negligible and localized to the project area. Reclamation is designed to take five years. This represents a long-term impact.

In a larger context, the use of materials from the Towne Pass site will reduce the potential for non-native vegetation to be introduced to the park environment. Over time, this will be a long-term beneficial impact.

Impairment of Park Resources and Values

Under this alternative, impacts to native vegetation in the project area will be minor but long-term. Impacts to native vegetation along SR 190 in the area of Towne Pass will be beneficial in the long term because of the reduction in the potential for the introduction of non-native plant species. Thus, under this alternative, there would be no impairment of park resources.

WILDLIFE AND WILDLIFE HABITAT

The extraction phase of this project will result in the removal of vegetation from the project area (discussed above) and in the occasional presence of a variety of extraction and processing-related machinery. The absence of vegetation and the presence of heavy equipment will impact both wildlife and wildlife habitat in the project area. Because it is impossible to tell the season in which activities at the project area will take place, it is possible that activities will occur during particularly vulnerable life stages. It is possible that work in the project area will interfere with activities necessary to the survival of some species, but this is not expected to threaten the continued existence of any species in the park unit. Based on this, impacts to wildlife and wildlife habitat will be moderate and long-term, but localized to the project area.

Impairment of Park Resources and Values

Under this alternative, impacts to wildlife and wildlife habitat in the project area will be moderate and long-term. These impacts will be localized to the project area and do not rise to the level of impairment. Thus, there will be no impairment of park resources under this alternative.

THREATENED AND ENDANGERED SPECIES

No threatened or endangered species are present within the project area. Therefore, while wildlife and wildlife habitat will be impacted (see above) no threatened and endangered species would be impacted by the proposed alternative.

Impairment of Park Resources and Values

Because there would be no impacts to threatened and endangered species under this alternative, there would be no impairment of park resources.

CULTURAL RESOURCES

While the proposed alternative involves a variety of activities in the project area, archeological survey indicated that there are no resources eligible to or listed on the National Register of Historic Places within the project area. Further, in the event that previously unknown cultural resources are encountered during the course of extracting or processing materials at the site, Caltrans policy requires that work be halted until the discoveries are evaluated by a qualified cultural resources professional and the provisions of 36CFR800 have been met. Therefore, under this alternative, there will be no impacts on cultural resources.

Impairment of Park Resources and Values

Because there are no resources eligible to the National Register of Historic Places within the project area, and mitigations are in place should archeological materials be encountered during the project, there are no impacts on cultural resources and thus no impairment of park resources.

E. ENVIRONMENTALLY PREFERRED ALTERNATIVE

The Council on Environmental Quality defines the environmentally preferred alternative as "...the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act's §101." Section 101 of the National Environmental Policy Act states that "... it is the continuing responsibility of the Federal Government to ...

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
4. preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;
5. achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."

The no-action alternative would leave MS #218 in its current condition. Under this alternative there would be no further extraction, but there would also be no further reclamation. It also necessitates that gravel and sand necessary to road maintenance is procured at least 50 miles from the point of use. This requires a greater expenditure of non-renewable energy resources and taxpayer funds. Finally, under the no-action alternative, it is more likely that exotic invasive species will be introduced to the park environment.

The proposed action is the environmentally preferred alternative. While it does include the removal of geologic materials from the park environment, it also provides for reclamation and therefore more fully meets Policy 3. Because this alternative provides for the protection of the park environment from invasive species, it also more fully meets Policy 4. Finally, obtaining the necessary geologic materials close to their point of use will cut down on the use of fuel, a non-renewable resource. Based on this, the proposed alternative more fully meets Policy 5. Thus, while both alternative strive to and, to some degree, meet all the policy objectives, the proposed alternative meets some objectives more fully than the no-action alternative.

V. CONSULTATION/COORDINATION

A. PUBLIC SCOPING PROCESS

A 30-day public scoping period was completed in October 2006. No comments were received.

B. AGENCIES/TRIBES/ORGANIZATION/INDIVIDUALS CONTACTED

Persons, organizations, tribes, and agencies contacted for information, or that assisted in identifying important issues, developing alternatives, or analyzing impacts include:

- Bureau of Land Management
- Death Valley National Park
- California Department of Fish and Game
- California Department of Conservation/Division of Mines and Geology (DMG)
- Inyo County Planning Department

C. PREPARERS

- Tom Dayak-Senior Environmental Planner, Department of Transportation
- Luis Elias-Senior Construction Engineer, Department of Transportation
- Mathew Goike-Maintenance Engineer, Department of Transportation
- David Grah-Deputy District Director Maintenance, Department of Transportation
- Mark A. Heckman-Biologist, Department of Transportation
- Dan Holland-Environmental Engineering, Department of Transportation
- R. Steve Miller-Landscape Architect, Department of Transportation

D. LIST OF RECIPIENTS

The news release was distributed to the following organizations.

Business Interests

Chamber of Commerce – Beatty	Stovepipe Wells
Chamber of Commerce – Death Valley	Timbisha Shoshone Tribal Office
Chamber of Commerce – Lone Pine	Convention Center & Visitors Bureau-
Chamber of Commerce – Pahrump	Henderson
Chamber of Commerce – Ridgecrest	Death Valley Natural History Association
Chamber of Commerce – Tonopah	Eddypr Public Relations Group
Furnace Creek Ranch	Lake Mead Boat Owners Association
Nevada Commission on Tourism	Furnace Creek Inn

Federal Government Agencies

U.S. House of Representatives	US Representative Trent Frank
Bureau of Land Management – Bishop	Advisory Council on Historic Preservation
Bureau of Land Management – Ridgecrest	US Fish & Wildlife Service
Bureau of Reclamation	USDA Forest Service, Inyo National Forest
Nevada Department of Transportation	National Park Service – Sequoia & Kings
Senator Dianne Feinstein	Canyon National Parks
Senator John McCain	National Park Service – Mojave National
Senator Buck McKeon	Preserve
Senator Harry Reid	

State and Local Agencies

California Department of Transportation	Public Library
California Department of Fish and Game	City of Tecopa
California Office of Historic Preservation	Public Library
City of Barstow	Inyo County Free Library

Indian Tribes

Timbisha Shoshone Tribe

Newspapers

The Associated Press	Los Angeles Times
Inyo Register/Pahrump Valley Times	Meadview Advertiser
Nevada Magazine	Needles Desert Star
Sunset	Nevada Magazine
News Review	Pahrump Valley Times
San Francisco Chronicle	San Jose Mercury News
Sunset	San Francisco Chronicle
The Associated Press	The Spectrum/Daily News
Henderson Home News	Tonopah Times Bonanza
Inyo Register/Pahrump Valley Times	United Press International
Las Vegas Review Journal	Victorville Valley Daily Press
Las Vegas Sun	

Radio Stations

KPCC NPR LA	KCBS
KSRW (Bishop)	KIBS
Outdoors Writer (both radio & TV)	Metro Networks

Television Stations

Cebridge Connections	KINC TV-15
KABC- TV 7	KLAS TV
KNBC	KPIX-TV
KTNV-TV	KPVM TV- Channel 41
TV 33 (Bishop)	KRON-TV (NBC) Channel 4
KABC- TV 7	KVBC
KINC TV-15	KVBC
KINC TV-15	NPG Cable
KINC TV-15	

VI. REFERENCES

- Barbour, M.G. and J. Major, eds
1988 Terrestrial Vegetation of California. Plant Society Special Publication Number 9.
- Brown, K.W., D.D. Smith, and R.P. McQuivey.
Food habits of desert big horn sheep in Nevada, 1956-76. Desert Bighorn Council Transactions, pp. 32-61.
- Brown, K.W., D.D. Smith, D.E. Bernhardt, K.R. Giles, and J.B. Helvie.
1975 Food habits and radionuclide tissue concentrations of Nevada bighorn sheep, 1972-73. Desert Bighorn Council Transactions, pp. 85-93.
- Bryant, W.A.
1989 Panamint Valley fault zone and related faults, Inyo and San Bernardino Counties, California. California Division of Mines and Geology Fault Evaluation Report 206. (Unpublished).
- Bryant, W.A.
1993 Personal communication with K. Cusic March 3, 1993.
- California Department of Fish and Game (CDFG)
1989 Memorandum on status of populations of bighorn sheep in California.
- California Department of Water Resources (DWR)
1976 Rainfall Analysis for Drainage Design. Volume I: Short Duration Precipitation Frequency Data. DWR Bulletin 195.
- California Natural Diversity DataBase (CNDDDB)
1992 "Rarefind" computer printout for the Panamint Butte 7.5-minute quad.
- California Natural Heritage Division
1992 California Department of Fish and Game, Sacramento. December 23, 1992 edition.
- California Natural Diversity DataBase (CNDDDB)
1991 List of special animals (revised August 1991). California Natural Heritage Division, California Department of Fish and Sacramento.
- Dixon, R.M
1990 Air-earth interface model for ecosystem restoration and maintenance. Pages 172-181 in Proceeding of the Fourth Annual Conference of the Society for Ecological Restoration, Oakland, California, and January 16-20, 1989.
- Ginnet, T.F.
1982 Food habits of feral burros and desert bighorn sheep in Death Valley National Monument. Desert Bighorn Council Transactions, pp. 81-87.

- Goldman, S.J., K. Jackson, and T.A. Bursztynsky
 1986 Erosion and Sediment Control Handbook. McGraw-Hill Book Company; New York.
- Greensfelder, R.W.
 1974 Maximum Credible Rock Acceleration from Earthquakes in California. California Division of Mines and Geology Map Sheet 23; 1:2,500,000 scale.
- Hall, W.E.
 1971 Geology of the Panamint Butte Quadrangle, Inyo County, California. U.S. Geological Survey Bulletin 1299.
- Hansen, C.G.
 1972 The evaluation of bighorn habitat in Death Valley National Monument. U.S. Fish and Wildlife Service report.
- Holland, R.F.
 1986 Preliminary descriptions of the Terrestrial Natural Communities of California. Department of Fish and Game Report.
- Jaeger, E.G.
 1969 Desert Wild Flowers. Stanford University Press, Stanford California.
- Joyner, W.B. and D.M. Boorn
 1982 Measurement, Characterization, and Prediction of Strong Ground Motion in Earthquake Engineering and Soil Dynamics II-Recent Advances in Ground-Motion Earthquake.
- Kay, B.L.
 1979 Summary of revegetation attempts on the second LA Aqueduct. U.C. Davis Agronomy and Range Service Mojave revegetation notes, No.22.
- Laudenslayer, W.F., W.E. Grenfell, Jr. and D.C. Zeiner
 1991 A checklist of the amphibians, reptiles, birds, and mammal of California. California Fish and Game 77(3): 109-141
- MacMahon, J.A.
 1992 The Audubon Society Nature Guides. Deserts. Alfred A. Knopf, Inc. New York, 638 pp.
- Millar, C.I. and W.J. Libby
 1989 Disneyland or native ecosystem: genetics and the restorationist. Rest & Mgmt. Notes 7 (1): 18-24.
- Mualchin, L. and A.L. Jones
 1992 Peak acceleration from maximum credible earthquakes in California (rock and stiff-soil sites). California Division of Mines and Geology Open-File Report 92-1.

- Mueller-Dombois, D. and H. Ellenberg
1974 Aims and Methods of Vegetation Ecology. John Wiley & Sons, Inc., NY, NY.
- Munz, P
1959 A California Flora. University of California Press, Berkley, California.
- Munz, P
1968 Supplement to A California Flora. University of California Press, Berkley, California.
- National Park Service (NPS)
2001 DEVA General Management Plan. U.S. Department of the Interior, National Park Service.
- Nelson, J.R.
1988 Rare plant field survey guidelines, Pages iii-iv In Inventory of Rare and Endangered Vascular Plants of California. California Native Plant Society, Special Publication No. 1, Fourth Edition.
- Plummer, A. P., D. R. Christenson, and S.B. Monsen.
1969 Restoring big game range in Utah. Utah Division of Fish and Game, Pub. 68-3.
- Plummer, A.P., A.C., Hull, Jr., G. Stewart, and J.H. Robertson
1955 Seeding rangelands in Utah, Nevada, southern Idaho, and western Wyoming. USDA Handbook 71.
- Sargent, K.A., and M.S. Bedinger
1985 Geologic and Hydrologic Characterization and Evaluation of the Basin and Range Province Relative to Disposal of High-level Radioactive Waste: Part II-Geologic and Hydrologic Characterization. U.S. Geological Survey Circular 904-B.
- Stoddart, L.A., A.D. Smith, and T.W. Box
1975 Range Management, Third Edition. McGraw-Hill, New York, N.Y.
- Thompson, T.H., J. Nuter, W.R. Moyle, Jr., and L.R. Woolfenden
1984 Maps Showing Distribution of Dissolved Solids and Dominant Chemical Type in Ground Water, Basin and Range Province, southern California. U.S. Geological Survey Water-Resources Investigations Report 83-4116-C.
- U.S. Department of Agriculture, Soil Conservation Service
1973 A method for estimating volume and rate of runoff in small watersheds. Technical paper No. SCS-TP-149.
- U.S. Department of Interior, Bureau of Land Management (BLM)
1980 The California Desert - Conservation Area plan. Final. U.S. Department of the Interior, Bureau of Land Management.
- U.S. Department of Interior, National Park Service (USNPS)
1982 Proposed natural and cultural resources management plan and final environmental

impact statement: Death Valley National Monument, California-Nevada. National Park Service.

U.S. Department of Interior, Bureau of Land Management (BLM)

1991 Bishop Resource Management Plan and Environmental Impact Statement. Bishop Office.

U.S. Department of Interior, Bureau of Land Management (BLM), Ridgecrest Office, Cathy O'Connor, Bob Parker. 1993. Personal communication with G. Newton.

Webb, R.H., J.W. Steiger, and E.B. Newman

1988 The response of vegetation to Disturbance in Death Valley National Monument, California. US Geological Survey Bulletin, 1793.

Western Region Climatological Center

1993 Summary report for Wildrose Ranger Station, California.

Zeiner, D.C., W.F. Laudenslayer, Jr., and K.E. Mayer, Eds.

1988 California's Wildlife, vol. 1-3. California Department of Fish and Game, Sacramento.

Zedler, P.H. and T.H. Ebert

1977 Shrub seedling establishment and survival following an unusual September rain in the Colorado Desert. Bulletin Ecological Society of America, 58:4